

Freshwater Quality Monitoring Bay of Islands and Humber Valley



ACKNOWLEDGEMENTS

ACAP Humber Arm wishes to acknowledge the following partners for their support of our 2014-15 freshwater monitoring program:



Department of Environment and Conservation
www.gov.nl.ca



www.indianbayecosystem.com

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INTRODUCTION

Freshwater monitoring serves an important role in observing any detectable change in water quality. Water quality throughout the Bay of Islands and Humber Valley is especially important as this watershed covers a large geographic region of western Newfoundland. The many freshwater bodies located throughout the region provide valuable habitat for a diverse variety of species. Many of these bodies of water are found within close proximity to residential, commercial, and industrial zones, and are heavily utilized for various recreational purposes.

This water monitoring project was carried out in partnership with Community University Research Alliance (CURA) H₂O Wet-Pro program. CURA H₂O is a community based water monitoring and management program based out of St. Mary's University. CURA H₂O aims to overcome the challenges of developing a consistent database of water quality data at a large geographic scale by standardizing collection methods through online training modules, and standardizing equipment within a large network of community based organizations.

This water quality monitoring program serves an important role. Development of this comprehensive water quality database for the Humber Valley and Bay of Islands regions will serve as a background data set. Ongoing monitoring is crucial to aid in early detection of any changes in water quality. Early detection allows for immediate response and mitigation, before irreparable damage is done to these important ecosystems and community resources.

METHODOLOGY

Thirty-four sites were selected throughout the Humber Valley and Bay of Islands regions. These sites were selected based on the following factors:

- proximity of the freshwater source to industrial activity;
- proximity of the freshwater source to residential zones;
- distribution of sites so that most communities situated within the Humber Valley watershed had representation;
- recreational use; and,
- special ecological interest.

Monitoring began in June, 2014 and continued until winter weather made sites inaccessible.

Sites were tested using an YSI Professional Plus (Pro Plus) instrument, fitted with a temperature/conductivity probe, a dissolved oxygen probe, and a pH probe. The YSI meter was calibrated bi-weekly to ensure accuracy.

At each site measurements were taken for:

- water temperature
- dissolved oxygen
- conductivity
- specific conductivity
- salinity
- total dissolved solids
- pH
- air temperature

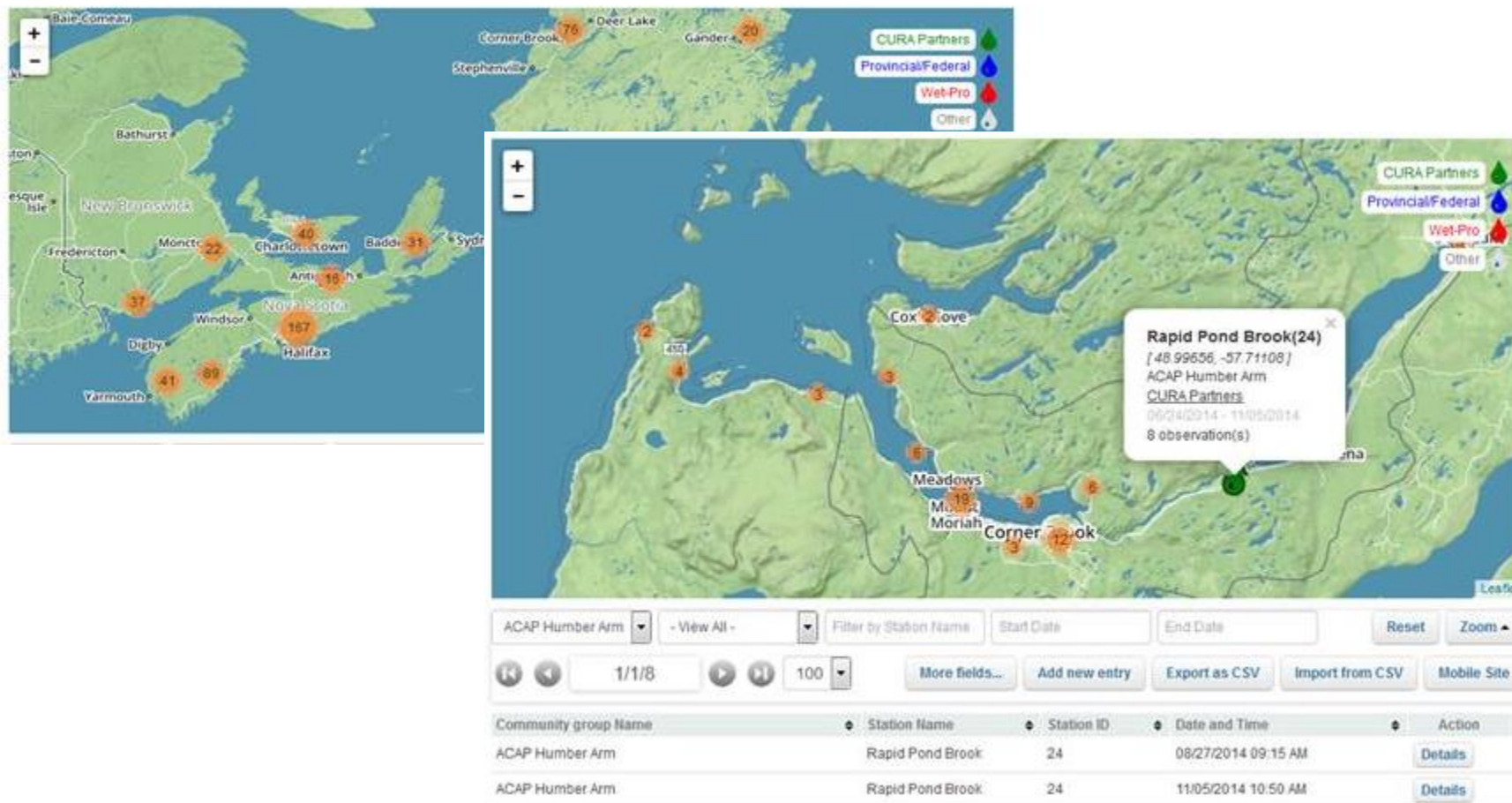
Precipitation for 72 hours prior to testing was recorded from Environment Canada historic data website.



A visual survey was performed at each site for erosion, debris, obstructions, oil sheens, etc.

A site picture and G.P.S. coordinates were taken at each site visit.

All data was uploaded into the CURA H₂O database. This database houses water quality data collected by thirty four community based monitoring organizations, from 700 monitoring sites across the Atlantic Canada region. Housing the data in this database contributes to the knowledge of water quality across the region, and provides policy-makers with a centralized location to obtain information to better inform their decisions.



WATER QUALITY PARAMETERS¹

Water Temperature: the condition of a body (lake, river, stream, ground), which determines the transfer of heat to, or from other bodies.

Dissolved Oxygen (DO): a measurement (measured in mg/L or percent saturation) of the amount of oxygen available in water for aquatic organism respiration. A minimum of 5.0mg/L is usually necessary to support aquatic life.

Conductivity (Cond.): a measurement of the ability of water to carry an electrical current.

Specific Conductivity: a temperature dependant measurement of conductivity which adjusts the reading to a calculated value at 25°C. Conductivity less than 500µS/cm is ideal in freshwater bodies to support aquatic life.

Salinity: a measurement of the concentration of dissolved salt ions. Salinity in freshwater bodies rarely exceed 0.5 ppt.

Total Dissolved Solids (TDS): a measurement of the amount of suspended and dissolved particles (algae, dead organic materials, and suspended inorganic material) found within a body of water. Concentrations of TDS usually do not exceed 500ppm in Canadian drinking water.

pH: a measurement of acidity of a solution based on a logarithmic scale. Samples measured between 0 - 7.0 are considered acidic, samples which are 7.0 exact are neutral and samples measured between 7.0 - 14.0 are considered basic. Freshwater pH should range between 6.5 - 8.5 to support aquatic life.

72 Hour Precipitation: the total precipitation which occurred over 72 hours prior to sampling.

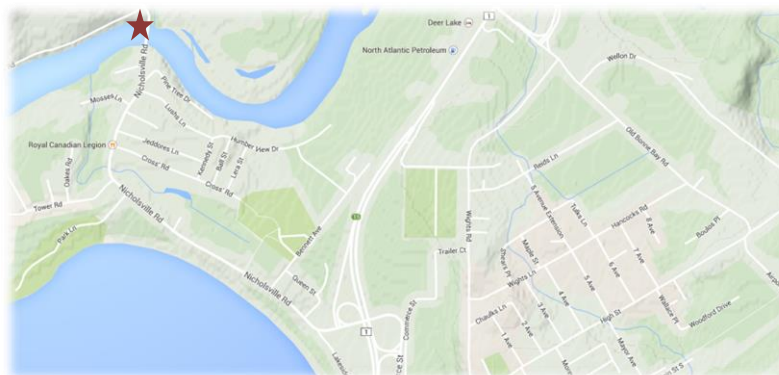
¹ Definitions were adapted from CURA H₂O online training module

RESULTS

Town of Deer Lake – Humber River @ Reidville Bridge

N 49.18927, W 57.44804

Located on the Humber River, Deer Lake, NL. This site is located in a residential area. The site is adjacent to a boat launch, with moderate to heavy recreational boat traffic in the area.

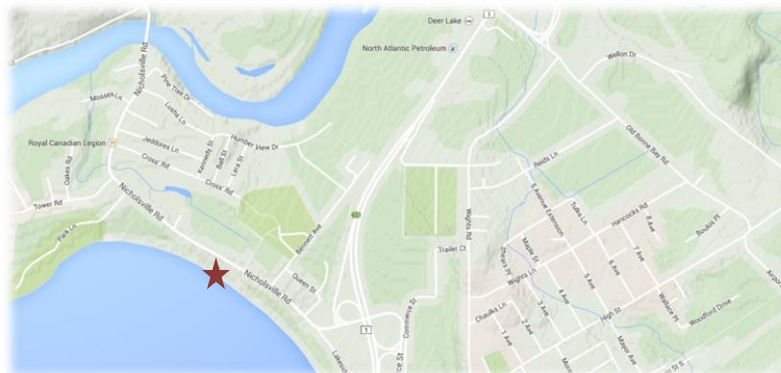


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Dissolved Oxygen (mg/L)	10.5	9.2	8.1	7.8	8.8	9.1	14.7
Dissolved Oxygen (%)	106	102	96	93	99	95	116
Specific Conductivity (µs/cm)	47.8	55	34.4	58.6	64.9	54.6	37.3
Salinity (ppt)	0.01	0.02	0.01	0.03	0.03	0.01	0.02
Water Temperature (°C)	15.5	20.0	23.8	23.0	20.9	21.4	4.6
Air Temperature (°C)	24.1	30.6	21.3	19.0	17.2	19.9	4.9
pH	7.29	7.17	7.27	7.31	8.37	7.31	7.36
Conductivity (µs/cm)	-	49.8	33.5	56.3	-	40.3	22.7
Total Dissolved Solids (ppm)	18.5	35.75	22.1	38.5	64.9	21	24.05
pH (mV)	-31.7	-29.9	-33.0	-35.9	-95.1	-	-44.0
72h Precipitation (mm)	2.7	15.2	2.8	3	8.2	1.7	28.6

Town of Deer Lake – Deer Lake @ Deer Lake Beach

N 49.17891, W 57.44361

Located on the shores of Deer Lake, in the Town of Deer Lake, NL. This site is located in a residential area. It is found along a walking trail with a sandy beach, and is a popular site for swimming.

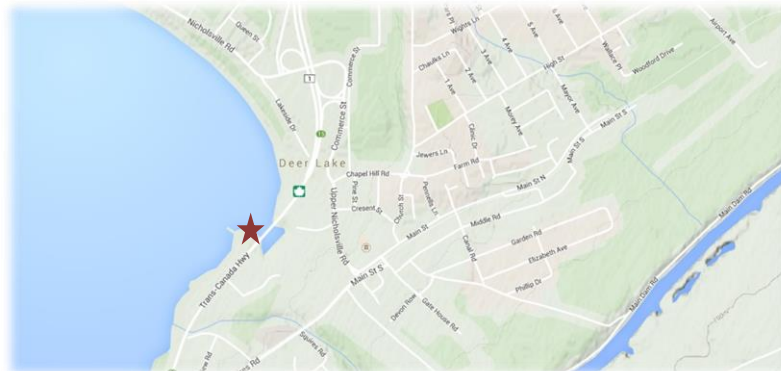


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Dissolved Oxygen (mg/L)	12.7	12.5	9.1	8.7	10.3	8.5	13.3
Dissolved Oxygen (%)	108.1	126	98	97	106	95	109
Specific Conductivity (µs/cm)	27.2	44.4	74.6	103	77.1	63.9	39.5
Salinity (ppt)	0.03	0.02	0.03	0.04	0.04	0.01	0.02
Water Temperature (°C)	11.9	15.1	19.2	19.7	16.5	17.3	6.7
Air Temperature (°C)	24.4	30.7	22.3	19.0	17.2	19.9	5.2
pH	7.31	7.04	7.17	6.98	7.73	7.55	7.23
Conductivity (µs/cm)	-	36.1	66.8	91.7	-	54.0	26.1
Total Dissolved Solids (ppm)	37.05	29.25	48.1	65	50.05	59.1	25.7
pH (mV)	-23.0	-27.3	-26.2	-12.4	-57.7	-	-36.0
72h Precipitation (mm)	2.7	15.2	2.8	3	8.2	1.7	28.6

Town of Deer Lake – Deer Lake @ TCH / Deer Lake Power Company

N 49.17043, W 57.43755

Located on the shores of Deer Lake, in the Town of Deer Lake, NL. This site is situated in an industrial area. It is located adjacent to the Trans-Canada Highway, and is also in close proximity to a hydro plant.

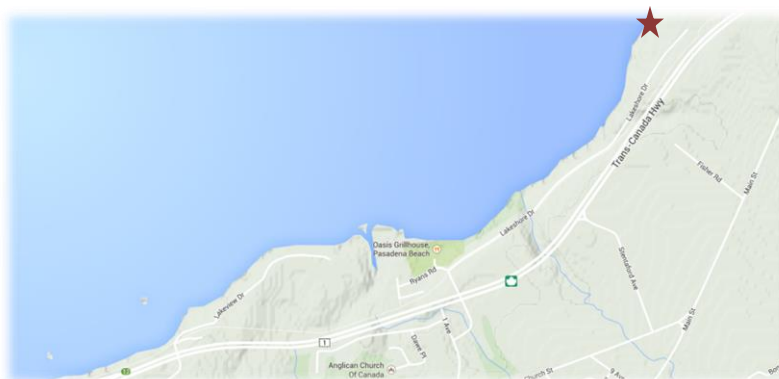


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Dissolved Oxygen (mg/L)	13.1	11.3	11.1	8.9	8.3	9.6	13.5
Dissolved Oxygen (%)	118	115	125	101	90	100	110
Specific Conductivity (µs/cm)	34	43.1	40.9	40.5	40.3	54.2	35
Salinity (ppt)	0.01	0.02	0.02	0.02	0.02	0.03	0.02
Water Temperature (°C)	10.3	15.8	17.1	21.6	19.3	20.2	6.7
Air Temperature (°C)	24.4	30.7	22.3	19.0	17.2	19.9	7.2
pH	7.21	7.02	7.49	7.72	7.65	7.54	7.53
Conductivity (µs/cm)	-	35.5	36.3	37.9	-	40.1	22.7
Total Dissolved Solids (ppm)	22.1	27.95	26.65	26.65	26	28.5	22.75
pH (mV)	-27.4	-42.5	-45.2	-56.9	-54.8	-	-52.8
72h Precipitation (mm)	2.7	15.2	2.8	3	8.2	1.7	28.6

Town of Pasadena – Deer Lake @ Lakeshore Drive

N 49.031853, W 57.594331

Located on the shores of Deer Lake, in the Town of Pasadena, NL. Located at the end of Lakeshore Drive, this lake site is situated in an area currently being developed into a new residential subdivision.

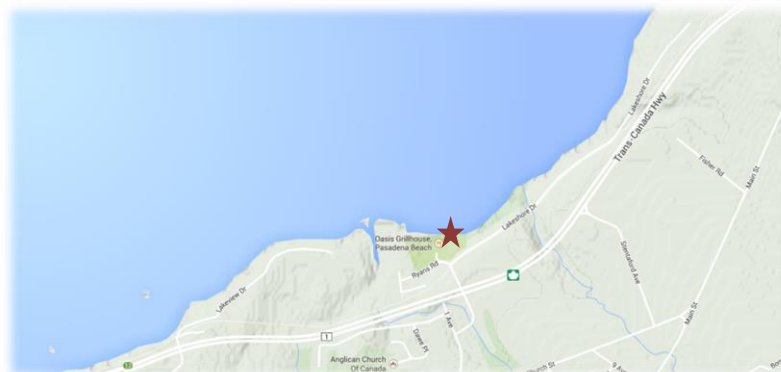


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Dissolved Oxygen (mg/L)	11.37	12.5
Dissolved Oxygen (%)	112	105
Specific Conductivity (µs/cm)	58.4	67.9
Salinity (ppt)	0.03	0.03
Water Temperature (°C)	13.7	7.4
Air Temperature (°C)	24.4	6.2
pH	7.43	7.30
Conductivity (µs/cm)	-	44.4
Total Dissolved Solids (ppm)	43.25	43.55
pH (mV)	-39.1	-41.6
72h Precipitation (mm)	2.7	28.6

Town of Pasadena – Deer Lake @ Pasadena Beach

N 49.02239, W 57.60722

Located on the shores of Deer Lake, in the Town of Pasadena, NL. This rocky beach is a popular area for swimming, and has a restaurant close to the water.

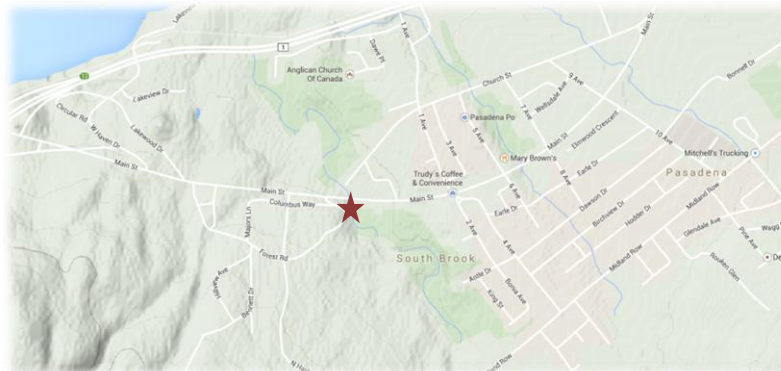


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Dissolved Oxygen (mg/L)	11.6	12.1	10.6	9.4	10.6	9.9	8.4
Dissolved Oxygen (%)	112	129	115	106	113	105	72
Specific Conductivity (µs/cm)	76.6	69	85.2	63.5	136.1	90.4	68.3
Salinity (ppt)	0.04	0.04	0.04	0.03	0.06	0.02	0.03
Water Temperature (°C)	13.6	17.5	19.5	21.0	19.3	20.4	8.4
Air Temperature (°C)	24.4	30.7	21.3	18.5	17.1	20.3	4.5
pH	7.37	7.5	7.77	7.79	7.69	7.44	7.18
Conductivity (µs/cm)	-	69.0	76.9	58.7	-	73.6	50.8
Total Dissolved Solids (ppm)	49.4	53.3	54.6	41.6	88.4	60.4	39.65
pH (mV)	-36.3	-48.5	-63.5	-62.1	-56.8	-	-34.7
72h Precipitation (mm)	2.7	15.2	2.8	3	8.2	1.7	28.6

Town of Pasadena – South Brook

N 49.01157, W 57.61099

Located on South Brook, in the Town of Pasadena, NL. This site is located in a commercial area. It is found along a forest covered walking trail, near major roads.

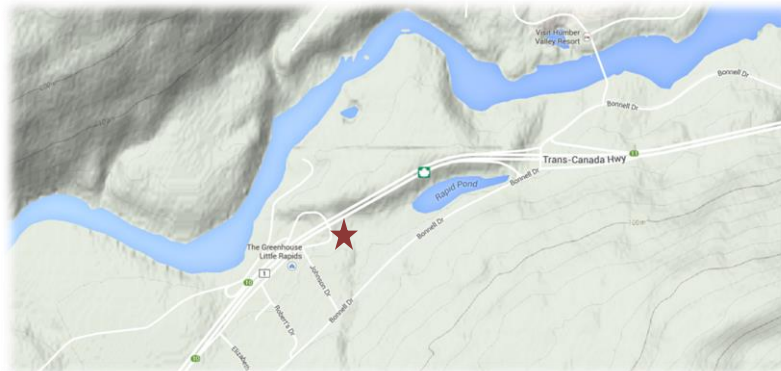


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Dissolved Oxygen (mg/L)	10	9.8	9.5	10.2	7.9	9.6	13.9
Dissolved Oxygen (%)	104	110	107	108	84	105	108
Specific Conductivity (µs/cm)	69	87	134.7	136.1	526.4	103.5	56
Salinity (ppt)	0.03	0.04	0.06	0.06	0.25	0.02	0.03
Water Temperature (°C)	17.3	20.7	20.6	17.7	18.0	19.9	4.5
Air Temperature (°C)	24.8	30.7	20.2	17.5	17.1	20.3	4.5
pH	7.69	7.53	7.69	7.81	6.91	7.76	7.06
Conductivity (µs/cm)	-	79.6	123.5	116.9	-	96.3	34.3
Total Dissolved Solids (ppm)	44.85	56.53	88.75	88.4	333.6	69.4	37.7
pH (mV)	-54.7	-51.2	-57.1	-64.4	-11.8	-	-27.6
72h Precipitation (mm)	2.7	15.2	2.8	3	8.2	1.7	28.6

Little Rapids Local Service District – Rapid Pond Brook

N 48.99656, W 57.71108

Located on Rapid Pond Brook, Little Rapids, NL. This site is located in a residential area. It is in a forest covered area, adjacent to the Trans-Canada Highway.

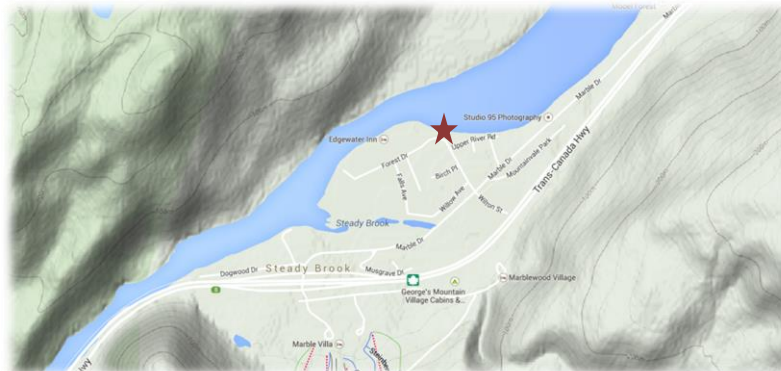


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Dissolved Oxygen (mg/L)	10.7	10.4	8.5	10.8	9.9	10.6	14.5
Dissolved Oxygen (%)	107	112	94	115	101	110	112
Specific Conductivity (µs/cm)	24.7	30.5	39.1	39.3	37.5	35.6	22.9
Salinity (ppt)	0.01	0.01	0.02	0.02	0.02	0.02	0.01
Water Temperature (°C)	15.7	18.9	19.4	16.9	16.6	18.5	4.6
Air Temperature (°C)	25.2	30.1	21.3	21.6	17.1	20.6	4.6
pH	7.25	7.26	7.35	7.53	7.32	7.4	6.70
Conductivity (µs/cm)	-	27.0	35.5	33.2	-	37.8	14
Total Dissolved Solids (ppm)	16.25	20.5	25.35	25.35	24.05	27.9	14.95
pH (mV)	-26.6	-33.8	-35.5	-45.2	-35.2	-	-7.7
72h Precipitation (mm)	2.7	15.2	2.8	3	8.2	1.7	28.6

Town of Steady Brook – Humber River @ Slipway

N 48.95678, W 57.82929

Located on the Humber River, in the Town of Steady Brook, NL. This site is located in a residential area. It is located beside a boat launch and is used heavily by recreational boaters.

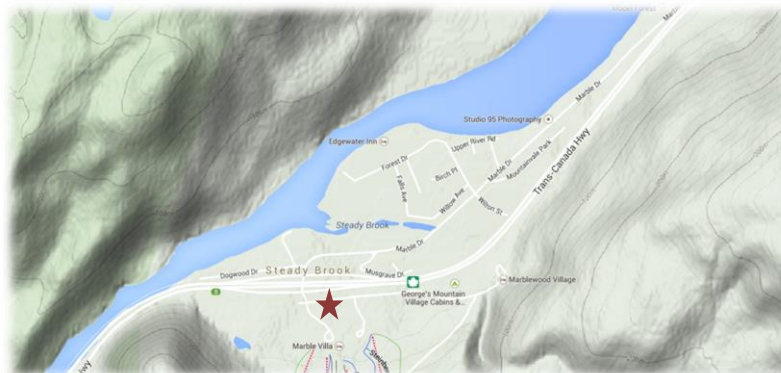


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Dissolved Oxygen (mg/L)	14.4	13.5	9.8	9.3	9.4	10	10.3
Dissolved Oxygen (%)	129	130	105	104	105	109	87
Specific Conductivity (µs/cm)	72.6	56.9	77.7	37.3	47.1	50.5	49.1
Salinity (ppt)	0.03	0.03	0.04	0.02	0.02	0.09	0.02
Water Temperature (°C)	9.9	15.8	19.0	20.4	20.2	19.6	8.0
Air Temperature (°C)	25.0	30.8	22.3	18.3	17.1	20.6	4.2
pH	7.22	7.59	8.09	7.81	7.58	7.71	7.65
Conductivity (µs/cm)	-	46.9	68.3	40.8	-	49.6	33.2
Total Dissolved Solids (ppm)	46.5	37.05	50.05	26.65	30.55	46.8	32.5
pH (mV)	-28.0	-52.7	-78.3	-62.2	-51.1	-	-60.4
72h Precipitation (mm)	2.7	14.6	2.8	3	8.2	1.7	28.6

Town of Steady Brook – Marble Mountain Pond

N 48.94985, W 57.83302

Located on Marble Mountain Pond, Steady Brook, NL. This site is located in a commercial area, at the base of a ski hill. It is adjacent to the Trans-Canada Highway, and has a fountain installed in the middle of the pond.



	06/26/2014 3:00 PM	07/07/2014 1:10 PM	07/24/2014 12:50 PM	08/06/2014 9:00 AM	08/18/2014 11:40 AM	08/27/2014 9:45 AM	11/05/2014 9:45 AM
Dissolved Oxygen (mg/L)	10.5	9.2	7.3	7.7	8.1	9.9	9.4
Dissolved Oxygen (%)	110	107	88	86	93	105	75
Specific Conductivity (µs/cm)	29.8	362.0	345.74	350.6	161.1	115.9	73.1
Salinity (ppt)	0.01	0.17	0.16	0.17	0.08	0.12	0.03
Water Temperature (°C)	15.5	22.5	24.9	23.2	21.5	19.6	6.1
Air Temperature (°C)	21.5	21.9	22.3	18.3	17.1	20.6	3.6
pH	7.1	8.04	8.28	8.28	7.82	8.03	7.2
Conductivity (µs/cm)	-	344.4	345.7	338.3	-	340.1	46.8
Total Dissolved Solids (ppm)	45.58	235.3	224.9	227.5	105.3	319	47.45
pH (mV)	-33.2	-81.8	-92.0	-91.9	-65.7	-	-35.3
72h Precipitation (mm)	10.6	9.8	2.8	3	8.2	1.7	28.6

Town of Hughes Brook - Hughes Brook @ Salmon Ladder

N 49.0079, W 57.86117

Located on Hughes Brook, on the North Shore of the Humber Arm. This site is found in a forest covered area along a logging road. This site is also close to a salmon ladder.



	06/24/2014 9:00 AM	07/10/2014 11:30 AM	07/21/2014 12:15 PM	08/05/2014 11:58 AM	11/04/2014 3:07 PM
Dissolved Oxygen (mg/L)	12.5	11.3	11.5	10.7	14.3
Dissolved Oxygen (%)	111	108	116	111	115
Specific Conductivity (µs/cm)	131.4	266.1	307.2	326.9	179.5
Salinity (ppt)	0.11	0.13	0.15	0.16	0.09
Water Temperature (°C)	9.9	17	15.3	16.9	5.9
Air Temperature (°C)	20.0	26	25.3	21.3	5.7
pH	8.31	8.31	8.4	8.46	8.03
Conductivity (µs/cm)	164.5	225.4	250.5	276.5	113.7
Total Dissolved Solids (ppm)	150.15	172.9	199.5	212.55	116.35
pH (mV)	-87.41	-96.4	-96.8	-102	-80.9
72h Precipitation (mm)	2.7	13.6	0	3	28.6

Town of Hughes Brook - Hughes Brook @ Route 440

N 48.9987, W 57.89339

Located on Hughes Brook, on the North Shore of the Humber Arm. This location is found in a rural area, located adjacent to the Route 440 Highway.



	06/24/2014 9:14 AM	07/10/2014 11:40 AM	07/21/2014 12:02 PM	08/19/2014 9:24 AM	08/27/2014 12:00 PM	09/17/2014 2:30 PM	11/04/2014 2:48 PM
Dissolved Oxygen (mg/L)	11.6	10.2	10.7	9.8	10.4	11.6	14
Dissolved Oxygen (%)	107	110	114	102	111	113	114
Specific Conductivity (µs/cm)	140.7	182.7	228.7	313.5	192	209.5	115.6
Salinity (ppt)	0.07	0.09	0.11	0.15	0.09	0.1	0.05
Water Temperature (°C)	11.6	19.0	18.0	16.0	18.5	13.6	6.2
Air Temperature (°C)	21.0	26.0	25.3	17.5	20.5	19.0	5.9
pH	8.06	8.11	8.25	8.34	8.22	8.28	7.67
Conductivity (µs/cm)	-	162.7	198.5	-	173.2	-	73.9
Total Dissolved Solids (ppm)	71.65	118.95	148.85	201.5	144.6	135.85	74.75
pH (mV)	-76.8	-84.8	-88.7	-	-	-94.4	-61.4
72h Precipitation (mm)	2.7	13.6	0	15	1.7	9.4	28.6

Town of Hughes Brook - Hughes Brook @ Estuary Hiking Trail

N 48.99665, W 57.89481

Located on Hughes Brook, on the North Shore of the Humber Arm. This site is found along a hiking trail, in a forest covered area.

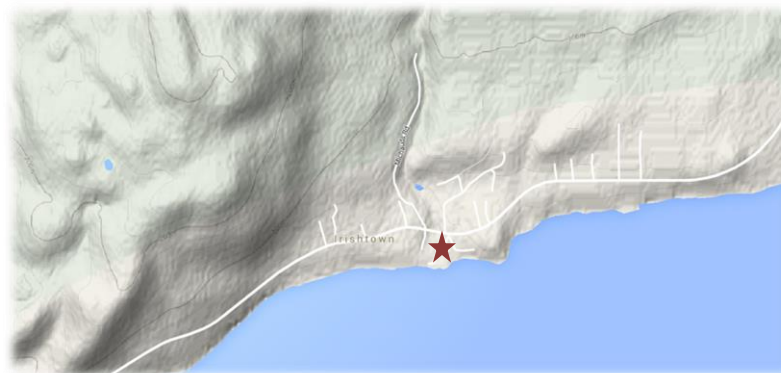


	06/24/2014 9:25 AM	09/17/2014 2:45 PM	11/04/2014 2:59 PM	02/18/2015 3:15 PM
Dissolved Oxygen (mg/L)	11.3	11.3	13.4	16.7
Dissolved Oxygen (%)	105	109	109	114
Specific Conductivity (µs/cm)	154.4	213.2	118.3	181
Salinity (ppt)	0.07	0.1	0.06	0.08
Water Temperature (°C)	11.6	13.6	6.2	0.0
Air Temperature (°C)	21.0	17.7	5.4	-5.4
pH	8.06	8.19	7.75	7.58
Conductivity (µs/cm)	-	-	76.5	-
Total Dissolved Solids (ppm)	97.5	138.45	77.35	117.65
pH (mV)	-67.5	-90.9	-66	-66.5
72h Precipitation (mm)	2.7	9.4	28.6	0

Town of Irishtown Summerside – Irishtown Brook @ Oceanview Drive

N 48.98264, W 57.93618

Located on Irishtown Brook, in the Town of Irishtown-Summerside, NL. This site is found within a residential area, downstream from a culvert under Ocean View Drive.

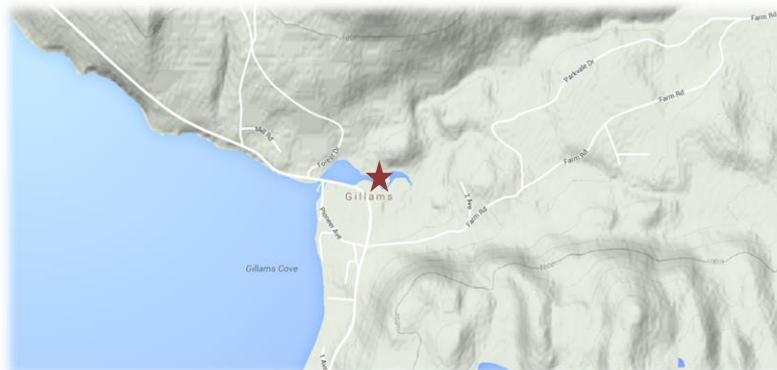


	06/24/2014 9:40 AM	07/10/2014 1:00 PM	07/21/2014 9:45 AM	08/05/2014 11:37 AM	08/19/2014 9:30 AM	08/27/2014 11:45 AM	11/04/2014 2:39 PM
Dissolved Oxygen (mg/L)	11.2	9.7	10.8	9.3	9.6	9.3	14.6
Dissolved Oxygen (%)	107	106	112	100	107	99	117
Specific Conductivity (µs/cm)	72.5	98.4	141.4	242.2	129	101.5	55.5
Salinity (ppt)	0.03	0.05	0.06	0.11	0.06	0.05	0.03
Water Temperature (°C)	12.3	19.5	16.5	18.4	15.9	18.0	5.7
Air Temperature (°C)	21.0	24.0	23.1	22.7	17.0	19.1	7.0
pH	7.89	7.83	7.8	8.42	8.08	7.61	7.6
Conductivity (µs/cm)	-	88.4	110.1	211.0	-	89	35
Total Dissolved Solids (ppm)	47.45	64.35	85.15	156.65	84.5	71.7	35.4
pH (mV)	-64.5	-58.1	-63.7	-98.1	-	-	-56.6
72h Precipitation (mm)	2.7	13.6	0	3	15	1.7	28.6

Town of Gillams – Gillams Brook @ Heritage Trail

N 49.01699, W 58.06741

Located on Gillams Brook, in the Town of Gillams, NL. This site is found along a Heritage Trail in a rural area, near the Route 440 Highway.

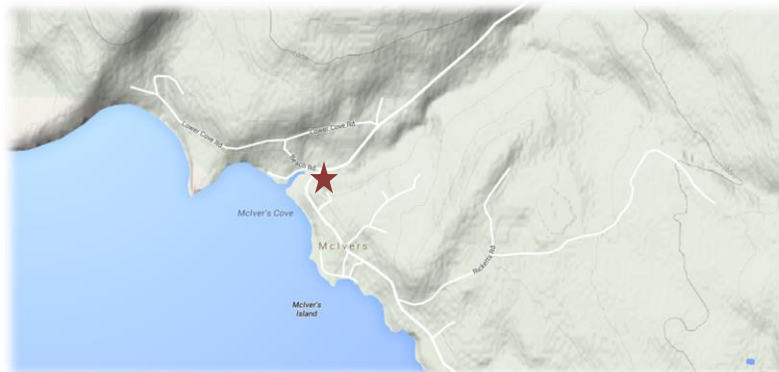


	06/24/2014 10:10 AM	07/10/2014 12:40 PM	07/21/2014 11:45 AM	08/05/2014 11:12 AM	08/19/2014 10:22 AM	08/27/2014 11:30 AM	09/17/2014 3:05 PM	11/04/2014 2:19 PM
Dissolved Oxygen (mg/L)	12.1	9.9	9.3	5.7	8.3	9.2	10.1	13.8
Dissolved Oxygen (%)	116	106	98	71	92	96.3	100	112
Specific Conductivity (µs/cm)	149.9	128.1	712	27542	1799	852	648	80.4
Salinity (ppt)	0.02	0.06	0.04	17.17	0.92	0.03	0.31	0.04
Water Temperature (°C)	11.9	19.0	17.7	20.7	16.2	18.5	14.6	6.0
Air Temperature (°C)	21.8	28.0	25.3	22.7	17.5	19.1	16.8	5.3
pH	7.55	7.48	7.36	7.03	7.55	7.28	7.78	7.72
Conductivity (µs/cm)	-	115.7	613	25359	-	831.0	-	52.0
Total Dissolved Solids (ppm)	32.5	85.15	461.5	18102	1170	831	416	53.3
pH (mV)	-46.2	-47.1	-37.7	-20.1	-	-366.5	-67.5	-62.7
72h Precipitation (mm)	2.7	13.6	0	3	15	1.7	9.4	28.6

Town of McIvers' – McIvers' Brook

N 49.07521, W 58.12466

Located on McIver's Brook, in the Town of McIver's NL. This site is located in a rural residential area, adjacent to the Route 440 Highway.



	06/24/2014 10:25 AM	07/11/2014 9:15 AM	07/21/2014 11:11 AM	08/05/2014 11:00 AM	08/19/2014 09:53 AM	08/27/2014 11:15 AM	11/04/2014 2:06 PM	02/18/2015 02:15 PM
Dissolved Oxygen (mg/L)	11.3	9.8	10.2	8.0	8.1	9.6	15	18
Dissolved Oxygen (%)	107	105	111	88	85	92	120	124
Specific Conductivity (µs/cm)	141	207.8	191.1	344.4	380	195	86.1	157.1
Salinity (ppt)	0.06	0.1	0.09	0.17	0.18	0.07	0.04	0.07
Water Temperature (°C)	12.8	18.0	18.3	19.5	16.7	17.8	5.7	0.2
Air Temperature (°C)	22.6	21.5	25.3	21.3	17.1	19.1	7.3	-3.6
pH	7.52	7.78	7.7	7.86	7.56	7.44	7.86	7.2
Conductivity (µs/cm)	-	179.1	166.4	308.3	-	173.2	54.3	-
Total Dissolved Solids (ppm)	85.45	133.9	124.15	224.25	247	121.7	55.9	102.05
pH (mV)	-44.1	-64.4	-57.4	-66.5	-	-	-70.3	-45.9
72h Precipitation (mm)	2.7	13.6	0	3	15	1.7	28.6	0

Town of Cox's Cove – Cox's Brook @ Bridge

N 49.12168, W 58.07874

Located on Cox's Brook, in the Town of Cox's Cove, NL. This site is located in a rural residential area. This site is located along a main road, and is situated downstream from a wetland area.

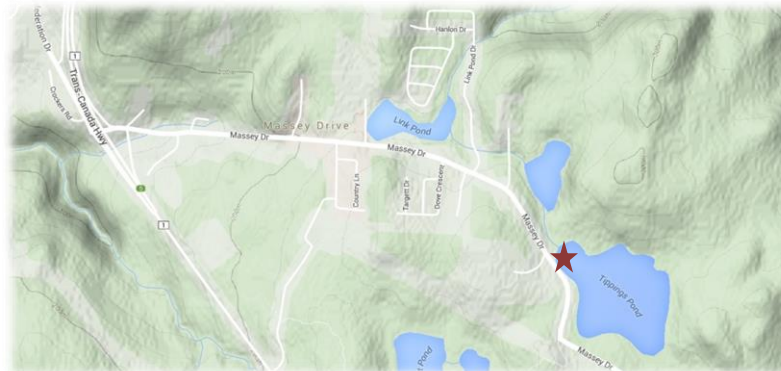


	06/24/2014 10:52 AM	07/11/2014 9:30 AM	07/21/2014 11:20 AM	08/05/2014 10:45 AM	08/19/2014 10:04 AM	08/26/2014 11:00 AM	11/04/2014 1:46 PM
Dissolved Oxygen (mg/L)	10.8	9.6	10.4	11	8.9	9.9	13.9
Dissolved Oxygen (%)	111	105	116	123	99	112	114
Specific Conductivity (µs/cm)	90.9	142.2	117.9	2949	940	141.5	66.3
Salinity (ppt)	0.15	0.07	0.05	1.55	1.01	0.52	0.03
Water Temperature (°C)	11.0	19.2	20.4	19.4	17.2	19.6	6.5
Air Temperature (°C)	22.8	21.8	25.3	23.0	16.6	20.0	8.0
pH	8.07	7.59	7.62	7.95	7.57	7.6	8.24
Conductivity (µs/cm)	-	126.8	107.6	2642	-	120.1	42.9
Total Dissolved Solids (ppm)	59.15	94.55	72.15	1930.5	1313.5	833	42.9
pH (mV)	-44.1	-54.1	-53.1	-71.1	-	-	-91.5
72h Precipitation (mm)	2.7	13	0	3	15	1.7	28.6

Town of Massey Drive – Tippings Pond

N 48.93209, W 57.88402

Located at Tippings Pond, in the Town of Massey Drive, NL. This site is on the outskirts of a residential area. There is a walking trail and a high level of recreational use.

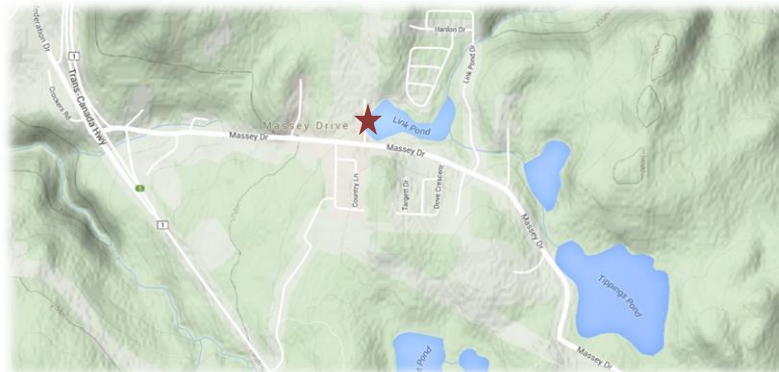


	06/23/2014 12:10 PM	07/07/2014 12:10 PM	07/21/2014 11:16 AM	08/06/2014 10:40 AM	08/19/2014 1:01 PM	08/26/2014 1:40 PM	09/17/2014 1:59 PM	11/04/2014 12:20 PM
Dissolved Oxygen (mg/L)	10.1	9.5	8.4	8.6	8.9	9	11.1	12.5
Dissolved Oxygen (%)	99	103	97	100	110	110	113	104
Specific Conductivity (µs/cm)	260.6	285.1	285.1	270.4	265.7	277.4	241.4	243.5
Salinity (ppt)	0.12	0.14	0.14	0.13	0.13	0.1	0.12	0.12
Water Temperature (°C)	13.9	18.5	21.9	22.0	19.8	18.9	15.9	7.1
Air Temperature (°C)	21.0	20.3	25.3	22.0	20.2	25.5	16.0	3.8
pH	8.21	8.35	8.55	8.51	8.51	8.43	8.46	8.2
Conductivity (µs/cm)	205.4	-	-	-	-	-	-	160.2
Total Dissolved Solids (ppm)	169.65	185.25	182.25	175.5	172.9	100.9	157.3	157.95
pH (mV)	-84.1	-	-	-	-	-	-106.2	-90.2
72h Precipitation (mm)	11.2	9.8	0	3	15	1.7	9.4	28.6

Town of Massey Drive – Link Pond

N 48.93729, W 57.8961

Located at Link Pond, in the Town of Massey Drive, NL. This site is located in a residential area, adjacent to Lakeview Road.

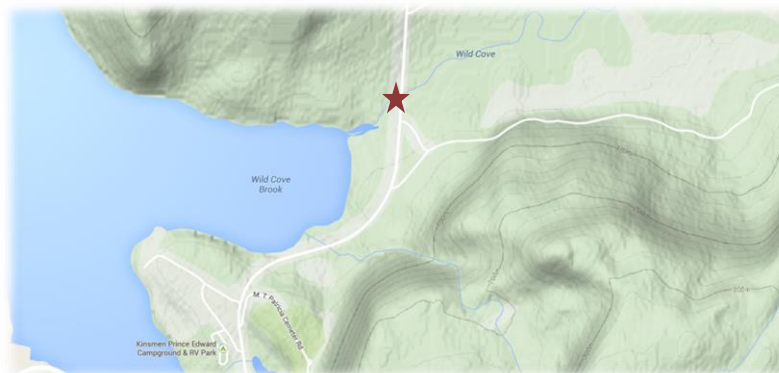


	06/23/2014 12:20 PM	07/07/2014 12:18 PM	07/24/2014 9:12 AM	08/07/2014 9:42 AM	08/19/2014 1:10 PM	08/26/2014 1:35 PM	09/17/2014 1:48 PM	11/04/2014 12:14 PM
Dissolved Oxygen (mg/L)	12.9	10.6	6.7	11	9.4	9.4	10.7	14.3
Dissolved Oxygen (%)	128	115	77	130	112	111	114	115
Specific Conductivity (µs/cm)	357.9	382.8	354.7	338	368.8	282.1	323	353.1
Salinity (ppt)	0.17	0.18	0.17	0.16	0.18	0.16	0.16	0.17
Water Temperature (°C)	14.5	19.2	21.6	23.9	19.6	18.6	18.2	5.3
Air Temperature (°C)	21.0	20.8	20.5	22.0	20.2	25.5	15.0	4.5
pH	8.34	8.26	7.92	8.64	8.16	8.09	8.28	7.93
Conductivity (µs/cm)	285.9	-	-	-	-	-	-	220.8
Total Dissolved Solids (ppm)	232.7	248.95	231.4	219.7	239.9	210	211.25	230.1
pH (mV)	-90.4	-	-	-	-	-	-96.5	-75.9
72h Precipitation (mm)	11.2	9.8	2.8	3	15	1.7	9.4	28.6

City of Corner Brook – Wild Cove Brook @ Route 440

N 48.9737, W 57.88374

Located on Wild Cove Brook, on the North Shore of the Humber Arm. This site is located adjacent to the Route 440 Highway. It is close to a regional landfill, as well as other industrial operations.



	06/24/2014 11:41 AM	07/10/2014 11:20 AM	07/21/2014 12:30 PM	08/05/2014 12:15 PM	09/17/2014 1:30 PM	11/04/2014 3:17 PM	02/18/2015 3:45 PM
Dissolved Oxygen (mg/L)	13.3	7.9	12.5	9.8	11.4	13.8	14.5
Dissolved Oxygen (%)	122	113	130	102	110	112	100
Specific Conductivity (µs/cm)	322.1	408.9	424.8	429.1	419.3	297.2	415.7
Salinity (ppt)	0.15	0.2	0.21	0.2	0.2	0.14	0.2
Water Temperature (°C)	11.0	17.1	16.7	17.1	12.5	6.5	0.0
Air Temperature (°C)	23.0	26.0	25.3	21.1	19.0	7.5	-5.5
pH	8.07	8	8.22	8.11	8.05	7.96	7.41
Conductivity (µs/cm)	-	346.9	357.6	363.7	-	192.6	-
Total Dissolved Solids (ppm)	209.3	265.5	276.2	278.85	271.7	193.05	270.4
pH (mV)	-74.7	-78.5	-86.6	-80.2	-82.3	-77.6	-77.9
72h Precipitation (mm)	2.7	13.6	0	0	9.4	28.6	0

City of Corner Brook – Corner Brook Stream @ Frog Pond

N 48.94371, W 57.93461

Located on the Corner Brook Stream, in the City of Corner Brook, NL. This site is downstream from the Kruger powerhouse, and upstream of a popular swimming area in Margaret Bowater Park.



	06/10/2014 8:45 AM	06/23/2014 2:05 PM	07/07/2014 12:32 PM	07/24/2014 11:05 AM	08/06/2014 11:50 AM	08/11/2014 2:15 PM	08/19/2014 11:44 AM	08/26/2014 1:20 PM	09/17/2014 1:35 PM	11/04/2014 12:02 PM	02/19/2015 10:15 AM
DO (mg/L)	12.1	10.4	10.9	9.1	9.7	9.6	9	9.1	11.5	13.2	17.2
DO (%)	105	98	110	101	108	107	101	100	114	106	117
Spec Cond (µs/cm)	112.9	126.9	124.7	96	78.6	87.6	108.2	105.3	80.5	119.4	77.6
Salinity (ppt)	0.05	0.06	0.06	0.04	0.04	0.04	0.05	0.04	0.04	0.06	0.04
Water Temp (°C)	9.0	13.0	16.5	19.9	20.1	18.7	-	18.1	13.8	6.0	0.0
Air Temp (°C)	12.7	21.9	20.8	22.3	23.0	18.0	17.9	25.5	17.5	4.6	-9.0
pH	7.83	6.08	8.05	8.08	7.91	8.09	7.97	7.8	7.88	7.94	7.53
Cond (µs/cm)	78.5	97.8	-	-	-	-	-	-	-	75.9	-
TDS (ppm)	73.45	82.55	81.25	62.4	51.36	57.2	67.6	54	52.65	77.35	50.7
pH (mV)	-	-75.3	-	-	-	-	-	-	-71.8	-75.8	-63.5
72h Prec (mm)	9.0	11.2	9.8	2.8	3	35.2	15	1.7	9.4	28.6	0

City of Corner Brook – Corner Brook Stream @ Marsh

N 48.94837, W 57.94437

Located on the Corner Brook Stream, near the Corner Brook Stream Trail Marsh Entrance, in the City of Corner Brook, NL. This site is found along a walking trail. It is bordered by a business park to the north, and a forest covered area to the south.



	06/23/2014 1:05 PM	07/07/2014 12:57 PM	07/23/2014 9:35 AM	08/06/2014 11:25 AM	08/11/2014 2:45 PM	08/19/2014 11:03 AM	08/26/2014 1:04 PM	09/17/2014 1:01 PM	11/04/2014 11:43 AM	02/18/2015 1:07 PM
DO (mg/L)	11.6	11	9.1	9.9	9.9	9.7	9.5	11.1	13.8	18.7
DO (%)	108	112	100	112	108	113	110	108	112	127
Spec Cond (µs/cm)	106	109.3	89.3	76.5	71.3	80.1	78.6	108.4	197.1	94.5
Salinity (ppt)	0.05	0.05	0.04	0.03	0.03	0.04	0.04	0.05	0.09	0.01
Water Temp (°C)	11.6	15.7	20.5	20.1	18.6	17.6	18.2	13.7	6.1	0.0
Air Temp (°C)	20.9	21.9	20.5	23.0	18.0	17.5	24.2	17.5	6.1	-5.6
pH	7.86	7.93	7.9	7.97	7.36	8.06	7.99	7.78	8.03	7.25
Cond (µs/cm)	78.8	-	-	-	-	-	-	-	126.1	-
TDS (ppm)	68.9	70.85	57.85	49.4	46.15	52	46	70.85	128.05	116.23
pH (mV)	-63.8	-	-	-	-	-	-	-66.9	-80.6	-49.9
72h Prec (mm)	11.2	9.8	2.8	3	35.2	15	1.7	9.4	28.6	0

City of Corner Brook – Corner Brook Stream @ Main Street

N 48.956806, W 57.825231

Located on the Corner Brook Stream, Main Street, in the City of Corner Brook, NL. This site is located in a commercial area at the mouth of Bell's Brook, bordered by parking lots.

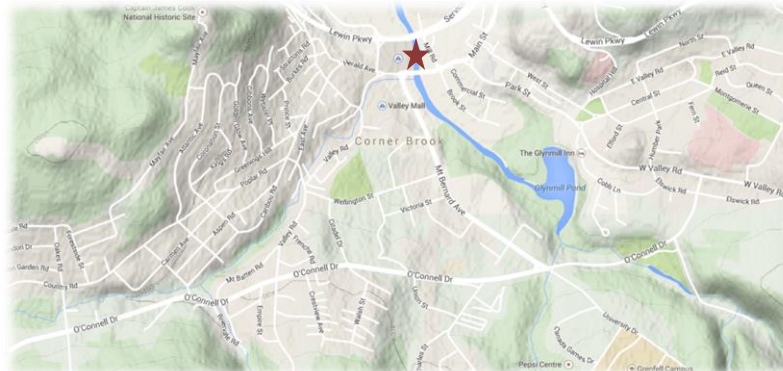


	06/10/2014 2:10 PM	09/17/2014 12:50 PM	11/04/2014 11:39 AM
Dissolved Oxygen (mg/L)	12.4	12.1	14
Dissolved Oxygen (%)	115	120	113
Specific Conductivity (µs/cm)	139	90.3	159.1
Salinity (ppt)	0.07	0.04	0.08
Water Temperature (°C)	11.5	13.4	6.1
Air Temperature (°C)	18.8	16.0	6.9
pH	8.24	8.11	8.13
Conductivity (µs/cm)	102.7	-	101.4
Total Dissolved Solids (ppm)	89.7	58.5	103.25
pH (mV)	-	-84.1	-86.3
72h Precipitation (mm)	9	9.4	28.6

City of Corner Brook – Corner Brook Stream @ Mill Road

N 48.95256, W 57.94912

Located on the Corner Brook Stream, near Mill Road, in the City of Corner Brook, NL. This site is found within an industrial area in close proximity to shopping centers, multiple gas stations, and directly upstream from a pulp and paper mill.

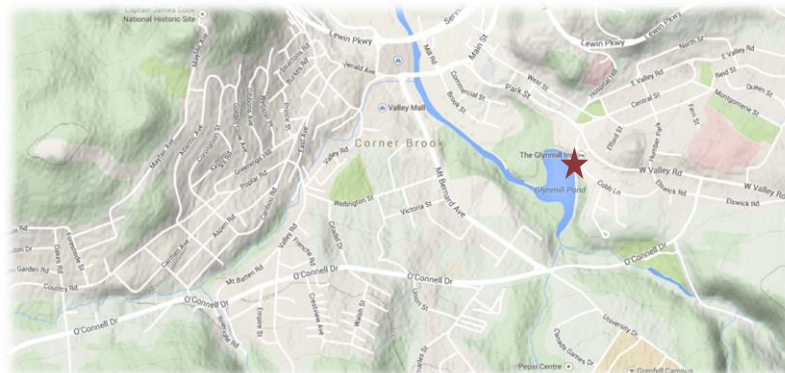


	06/23/2014 1:10 PM	07/07/2014 12:57 PM	07/24/2014 10:15 AM	08/06/2014 11:30 AM	08/11/2014 2:55 PM	08/19/2014 10:56 AM	08/26/2014 1:01 PM	09/17/2014 12:55 PM	11/04/2014 11:32 AM
DO (mg/L)	11.9	11.3	8.7	9.9	9.8	9.7	9.5	10.7	14.6
DO (%)	113	120	97	115	105	102	102	104	117
Spec Cond (µs/cm)	160.3	147.1	130.4	100.9	97.6	197	180	104.6	212.5
Salinity (ppt)	0.08	0.07	0.06	0.05	0.05	0.09	0.08	0.05	0.1
Water Temp (°C)	12.4	16.7	20.6	20.3	18.6	17.4	18.4	13.8	6.0
Air Temp (°C)	21.1	21.9	21.5	23.0	18.0	17.5	24.2	10.0	6.0
pH	8.02	7.98	7.98	8.44	7.92	8.26	8.11	8	8.13
Cond (µs/cm)	121.0	-	-	-	-	-	-	-	135.5
TDS (ppm)	103.35	95.55	84.5	65	63.7	128.05	94.6	68.25	137.15
pH (mV)	-72.1	-	-	-	-	-	-	-79.6	-86.6
72h Prec (mm)	11.2	9.8	2.8	3	35.2	15	1.7	9.4	28.6

City of Corner Brook – Glynmill Pond @ Cobb Lane

N 48.94828, W 57.93993

Located at Glynmill Pond, in the City of Corner Brook, NL. This man made pond site is found along a walking trail. It is a forest covered area, in close proximity to salmon ladders, and a water intake for Kruger Inc.



	06/23/2014 12:40 PM	07/07/2014 12:47 PM	07/24/2014 9:15 AM	08/06/2014 11:48 AM	08/11/2014 2:30 PM	08/19/2014 11:15 AM	08/26/2014 9:26 AM	09/17/2014 9:28 AM	11/04/2014 11:51 AM
DO (mg/L)	12.2	11.4	8.2	9.7	8.1	8.7	9	11.1	13.1
DO (%)	115	117	95	111	90	99	96	111	107
Spec Cond (µs/cm)	112.1	116.9	96.1	87.2	74.6	97.2	98.4	85.3	141.4
Salinity (ppt)	0.05	0.05	0.04	0.04	0.03	0.05	0.04	0.04	0.07
Water Temp (°C)	12.4	16.5	21.9	21.7	18.8	17.6	17.9	14.1	6.1
Air Temp (°C)	20.7	20.8	20.5	23.0	18.0	17.9	15.3	14.3	5.5
pH	8.05	7.84	7.98	7.27	7.94	7.82	7.81	8.07	8.07
Cond (µs/cm)	85.4	-	-	-	-	-	-	-	90.3
TDS (ppm)	73.45	76.05	62.4	62.4	48.7	63.05	58.7	57.2	91.65
pH (mV)	-72.0	-	-	-	-	-	-	-75.5	-82.5
72h Prec (mm)	11.2	9.8	2.8	3	35.2	15	1.7	9.4	28.6

City of Corner Brook – Bell’s Brook @ Sunnyslope Drive

N 48.93859, W 57.9813

Located on Bell’s Brook near Sunnyslope Drive, in the City of Corner Brook, NL. This site is adjacent to a residential area.



	06/23/2014 1:30 PM	07/07/2014 1:33 PM	07/24/2014 1:40 PM	08/06/2014 11:44 AM	08/19/2014 1:30 PM	08/26/2014 12:30 PM	09/17/2014 11:43 AM	11/04/2014 11:13 AM	02/19/2015 9:05 AM
DO (mg/L)	11.6	9.7	8.9	10.1	9.5	10.1	13	14.5	17.3
DO (%)	118	107	97	112	113	110	127	117	120
Spec Cond (µs/cm)	575.1	101.2	1187	716	764	619	1410	423.3	929.2
Salinity (ppt)	0.25	0.5	0.51	0.6	0.38	0.22	0.71	0.2	0.45
Water Temp (°C)	15.2	19.4	18.9	19.1	16.7	17.7	13.6	5.8	0.2
Air Temp (°C)	21.1	20.1	21.3	22.8	20.2	22.9	15.4	8.5	11.0
pH	8.83	8.42	8.17	8.25	8.32	8.32	8.4	7.82	7.61
Cond (µs/cm)	467.9	-	-	-	-	-	-	268.3	-
TDS (ppm)	373.75	656.5	799.5	780.1	494	463.6	916.5	274.95	603.85
pH (mV)	-17.8	-	-	-	-	-	-102.3	-70.3	-68.6
72h Prec (mm)	11.2	9.8	2.8	3	15	1.7	9.4	28.6	0

City of Corner Brook – Bell’s Brook @ Country Road

N 48.94181, W 57.97492

Located on Bell’s Brook, near Country Road, in the City of Corner Brook, NL. This site is located in a residential area, running between a subdivision and O’Connell Drive.



	06/10/2014 10:10 AM	06/23/2014 1:20 PM	07/07/2014 1:30 PM	07/24/2014 10:45 AM	08/06/2014 11:45 AM	08/19/2014 1:26 PM	08/26/2014 12:40 PM	09/17/2014 11:56 AM	11/04/2014 11:17 AM
DO (mg/L)	-	10.5	9.4	9.2	11.3	9.5	9.7	12.9	14.1
DO (%)	107	105	101	101	125	107	105	121	114
Spec Cond (µs/cm)	543.9	503.3	682	1064	1014	790	655	1196	406.2
Salinity (ppt)	0.26	0.24	0.33	0.53	0.5	0.39	0.21	0.6	0.2
Water Temp (°C)	10.9	15.2	18.8	19.0	18.4	16.4	18.1	13.2	6.1
Air Temp (°C)	14.6	21.1	20.1	21.5	22.8	20.2	22.9	17.5	6.3
pH	8.1	8.55	8.23	8.21	8.28	8.32	8.4	7.91	7.91
Cond (µs/cm)	397.0	409	-	-	-	-	-	-	259.9
TDS (ppm)	352.15	326.95	442	689	656.5	513.5	522.6	780	265.55
pH (mV)	-	-100.2	-	-	-	-	-	-99.1	-74.3
72h Prec (mm)	9.0	11.2	9.8	2.8	3	15	1.7	9.4	28.6

City of Corner Brook – Bell’s Brook @ Wellington Street

N 48.9468, W 57.9563

Located on Bell’s Brook near Wellington Street, in the City of Corner Brook, NL. This site is located in a residential area. It is bordered closely by two roads.



	06/23/2014 1:50 PM	07/07/2014 1:20 PM	07/24/2014 10:55 AM	08/07/2014 9:47 AM	08/19/2014 1:20 PM	08/26/2014 12:50 PM	09/17/2014 10:43 AM	11/04/2014 11:24 AM
Dissolved Oxygen (mg/L)	11.1	10.9	9.1	10.8	9.4	9.3	13.6	14.3
Dissolved Oxygen (%)	111	117	100	119	105	103	126	115
Specific Conductivity (µs/cm)	383.8	546.2	881	849	581	487	644.1	259.1
Salinity (ppt)	0.19	0.27	0.43	0.42	0.28	0.11	0.32	0.14
Water Temperature (°C)	14.5	18.2	19.6	18.5	16.5	17.9	11.8	5.9
Air Temperature (°C)	21.1	20.9	21.5	22.8	20.2	24.2	15.9	7.5
pH	8.44	8.54	8.42	8.57	8.4	8.4	8.43	8.09
Conductivity (µs/cm)	307	-	-	-	-	-	-	186.9
Total Dissolved Solids (ppm)	249.61	354.9	572	552.5	377.8	349.1	419.25	191.1
pH (mV)	-95.8	-	-	-	-	-	-103.2	-84.3
72h Precipitation (mm)	11.2	9.8	2.8	3	15	1.7	9.4	28.6

City of Corner Brook – Petries Brook @ Burton’s Lane

N 48.94897, W 58.01566

Located on Petries Brook, Burton’s Lane, in the City of Corner Brook, NL. This site is located in a residential area, downstream from a culvert under Burton’s Lane.

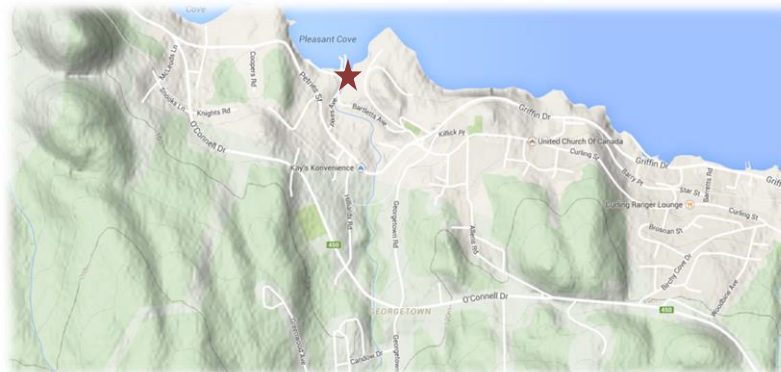


	06/26/2014 8:50 AM	07/07/2014 11:22 AM	07/24/2014 10:30 AM	08/07/2014 2:35 PM	08/27/2014 3:00 PM	09/17/2014 11:58 AM	11/04/2014 11:00 AM	02/18/2015 12:05 PM
Dissolved Oxygen (mg/L)	10.9	11.1	8.6	8.4	9.1	10.4	14.8	19.1
Dissolved Oxygen (%)	110	112	90	91	93	97	118	132
Specific Conductivity (µs/cm)	67.8	123.6	158.9	172.7	138.3	149.1	66	95
Salinity (ppt)	0.03	0.06	0.07	0.08	0.06	0.06	0.03	0.04
Water Temperature (°C)	11.4	15.6	18.2	18.5	18.5	12.1	5.5	0.2
Air Temperature (°C)	11.0	19.7	21.5	23.6	21.7	1.07	7.4	-6.0
pH	7.75	8.03	7.88	8.23	7.9	8.09	7.9	7.66
Conductivity (µs/cm)	50.2	101.3	138.3	-	120	-	41.7	-
Total Dissolved Solids (ppm)	44.2	80.6	103.35	112.45	120.5	83.85	42.25	61.75
pH (mV)	-56.6	-78.7	-66.8	-87.1	-	-83.7	-72.0	-70.5
72h Precipitation (mm)	10.6	9.8	2.8	3	1.7	9.4	28.6	0

City of Corner Brook – Petries Brook @ Marina

N 48.963570, W 58.017318

Located on Petries Brook, in the City of Corner Brook, NL. This stream site is located in a residential area near a marina.



	06/10/2014 1:45 PM	06/25/2014 11:30 AM	07/07/2014 1:39 PM	07/23/2014 1:10 PM	08/07/2014 11:28 AM	08/18/2014 12:34 PM	08/27/2014 3:15 PM	09/17/2014 12:20 PM	11/04/2014 10:45 AM
DO (mg/L)	13	11.4	11	9	10.4	11	11	12.2	13.7
DO (%)	130	111	117	109	108	119	110	124	110
Spec Cond (µs/cm)	240.3	262.7	342.7	453.9	393.2	393.5	329.5	334.5	162.9
Salinity (ppt)	0.11	0.13	0.16	0.22	0.19	0.19	0.15	0.16	0.08
Water Temp (°C)	16.1	13.8	17.7	25.2	18.4	17.6	18.1	15.7	6.0
Air Temp (°C)	18.4	15.9	18.0	26.3	20.3	17.1	21.0	18.0	7.1
pH	9.1	8.22	8.38	8.23	8.26	8.17	8.23	8.57	7.85
Cond (µs/cm)	199.4	-	294.5	454.2	-	393.5	303.1	-	103.7
TDS (ppm)	156	107.3	222.95	293.8	255.45	255.95	309.9	217.75	105.95
pH (mV)	-	-82.0	-101.0	-89.4	-89.1	-84.15	-	-112.6	-70.7
72h Prec (mm)	9	0	9.8	1.6	3	8.2	1.7	9.4	28.6

Town of Humber Arm South – Cook’s Brook @ Route 450

N 48.96973, W 58.06552

Located on Cook’s Brook, on the South Shore of the Humber Arm. This stream site is located in an undeveloped forest covered area. This is a popular swimming area in the region.



	06/10/2014 10:45 AM	06/25/2014 9:20 AM	07/08/2014 10:55 AM	07/23/2014 10:35 AM	08/07/2014 11:40 AM	08/18/2014 12:50 PM	08/27/2014 3:20 PM	09/17/2014 12:10 PM	11/04/2014 10:36 AM	02/18/2015 11:51 AM
DO (mg/L)	12	11.4	10.7	10.3	10.7	10.7	9.9	12.6	14.8	16.5
DO (%)	114	111	111	113	115	115	110	123	120	113
Spec Cond (µs/cm)	149.6	152.2	194.7	201.7	232.8	174.2	149.6	178.2	124	157.1
Salinity (ppt)	0.07	0.07	0.09	0.1	0.11	0.08	0.09	0.08	0.06	0.07
Water Temp (°C)	12.4	14.0	16.8	19.4	18.3	18.5	18.8	13.1	6.0	-0.1
Air Temp (°C)	14.6	15.2	17.8	22.6	20.3	17.1	21.0	17.0	7.8	-6.1
pH	8.16	8.16	8.23	8.26	8.37	8.33	8.29	8.26	7.98	7.64
Cond (µs/cm)	113.7	-	164.3	180.1	-	-	-	-	79.0	-
TDS (ppm)	97.5	98	126.75	141.3	151.45	113.1	130.4	115.7	80.6	101.4
pH (mV)	-	-80.7	-91.6	-95.6	-95.8	-93.3	-	-94.1	-78.1	-70.6
72h Prec (mm)	9	0	10.4	1.6	3	8.2	1.7	9.4	28.6	0

Town of Humber Arm South – Clark’s Brook, Benoit’s Cove

N 49.00932, W 58.13245

Located on Clark’s Brook, in the Town of Benoit’s Cove, NL. This site is located in a residential area on the South Shore of the Humber Arm. It is located within a day park, adjacent to St. Peter’s Academy school.



	06/10/2014 11:10 AM	06/25/2014 9:30 AM	07/08/2014 11:06 AM	07/23/2014 10:50 AM	08/07/2014 10:52 AM	08/18/2014 1:00 PM	08/27/2014 3:30 PM	11/04/2014 10:23 AM	02/18/2015 11:18 AM
DO (mg/L)	12.3	10.5	10.7	9.5	10.2	9.5	10.6	14.5	19.3
DO (%)	114	103	111	107	113	102	112	121	132
Spec Cond (µs/cm)	73.7	75.2	82.3	133.5	165.1	148.4	168.1	52.4	88.6
Salinity (ppt)	0.03	0.03	0.04	0.06	0.08	0.07	0.06	0.02	0.04
Water Temp (°C)	11.5	14.4	17.0	20.5	18.7	18.4	18.8	4.9	0.1
Air Temp (°C)	15.5	17.7	17.3	22.6	19.3	17.1	21.0	8.0	-6.4
pH	8.02	7.97	7.93	8.14	8.26	8.33	8.1	8.07	7.35
Cond (µs/cm)	54.7	-	69.9	122.0	-	-	-	32.3	-
TDS (ppm)	48.1	48.75	63.3	86.45	107.25	96.2	100.5	33.8	57.2
pH (mV)	-	-69.0	-74.0	-83.2	-89.2	-93.4	-	-78.7	-55.7
72h Prec (mm)	9	0	10.4	1.6	3	8.2	1.7	28.6	-55.7

Town of Humber Arm South – Blow Me Down Brook @ Route 450

N 49.061065, W 58.224081

Located on Blow Me Down Brook, on the South Shore of the Humber Arm. This stream site is located in an undeveloped forest covered area, adjacent to the Route 450 Highway.

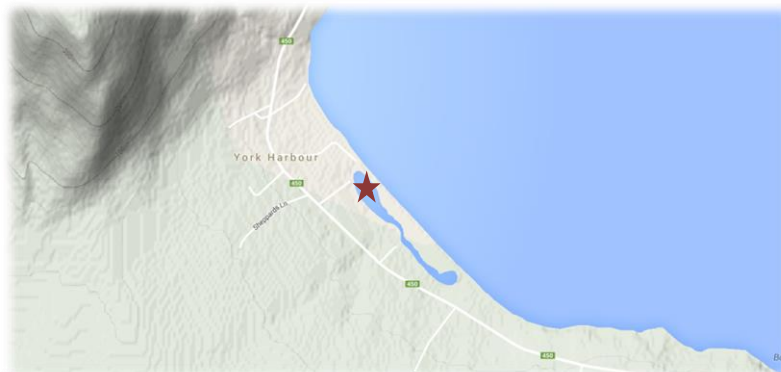


	06/10/2014 11:25 AM	06/25/2014 9:50 AM	07/08/2014 11:40 AM	07/23/2014 11:21 AM	08/07/2014 12:11 PM	08/18/2014 1:20 PM	08/27/2014 3:53 PM	11/04/2014 10:09 AM	02/18/2015 10:49 AM
DO (mg/L)	12.7	11.6	11.1	10.3	9.2	10.5	9.7	14.5	20.2
DO (%)	114	109	110	113	97	113	109	115	139
Spec Cond (µs/cm)	68.2	71	80.7	107.9	120.5	123.1	118.4	69.4	114.2
Salinity (ppt)	0.03	0.03	0.04	0.05	0.06	0.06	0.05	0.03	0.05
Water Temp (°C)	10.1	14.4	15.1	18.8	18.1	16.8	18.4	5.3	0.0
Air Temp (°C)	16.3	15.4	16.9	24.7	20.8	17.1	20.6	6.8	-7.2
pH	7.9	7.9	7.87	8.1	8.2	8.17	8.12	8.14	7.36
Cond (µs/cm)	48.8	-	65.5	95.2	-	-	-	43.6	-
TDS (ppm)	44.2	46.15	52.55	70.2	78	79.95	63.9	44.85	74.1
pH (mV)	-	-65.0	-70.1	-80.2	-85.6	-83.5	-	-132.8	-54.6
72h Prec (mm)	9	0	10.2	1.6	3	8.2	1.7	28.6	0

Town of York Harbour – Lagoon

N 49.05918, W 58.37435

Located in the Town of York Harbour, NL this lagoon is frequently inundated with salt water from the Bay of Islands during high tides and storm events. The lagoon is near a residential area.



	06/25/2014 10:10 AM	07/08/2014 12:10 PM	07/23/2014 11:20 AM	08/07/2014 12:17 PM	08/18/2014 1:40 PM	08/27/2014 4:10 PM	11/04/2014 9:52 AM
Dissolved Oxygen (mg/L)	8.6	8.4	9.3	13.6	7.9	9.5	12.2
Dissolved Oxygen (%)	95	91	116	130	100	110	113
Specific Conductivity (µs/cm)	29000	24241	25170	28352	41468	26110	42690
Salinity (ppt)	18.3	14.73	18.78	17.61	26.65	15.61	26.84
Water Temperature (°C)	13.7	16.0	21.7	22.6	19.8	18.0	4.0
Air Temperature (°C)	15.4	17.1	25.3	21.2	17.2	20.6	6.7
pH	7.7	7.4	8.07	8.38	7.83	8.2	7.12
Conductivity (µs/cm)	-	19950	24419	-	-	-	25527
Total Dissolved Solids (ppm)	19328	15730	17238	18447	26981.5	20361	27794
pH (mV)	-	-43.6	-79.6	-98.1	-66.1	-	-31.6
72h Precipitation (mm)	0	10.2	0	3	8.2	1.7	28.6

Town of Lark Harbour – Fairfax Brook @ Route 450

N 49.10004, W 58.38587

Located on Fairfax Brook, Lark Harbour, NL. This stream site is located in a rural residential area. This site is located adjacent to the Route 450 Highway.



	06/25/2014 10:30 AM	07/08/2014 12:30 PM	07/23/2014 12:00 PM	08/05/2014 12:00 PM	08/07/2014 2:01 PM	08/18/2014 1:51 PM	08/27/2014 4:20 PM	11/04/2014 9:30 AM
Dissolved Oxygen (mg/L)	10.6	11.1	9.9	9.8	10.2	9	9.8	14.6
Dissolved Oxygen (%)	102	113	112	106	111	94	111	125
Specific Conductivity (µs/cm)	124.9	157.3	190.8	265.8	245.6	211.9	199.1	109.6
Salinity (ppt)	0.06	0.07	0.09	0.93	0.11	0.1	0.15	0.05
Water Temperature (°C)	13.4	16.1	21.2	18.2	18.4	17.1	18.0	5.4
Air Temperature (°C)	15.6	17.1	25.3	21.9	23.4	17.2	20.2	10.9
pH	7.94	8.06	8.38	8.39	8.78	8.64	8.51	8.29
Conductivity (µs/cm)	-	130.6	177.0	231.3	-	-	-	68.6
Total Dissolved Solids (ppm)	81.25	102.05	124.15	172.9	157.3	136.85	140.6	70.85
pH (mV)	-66.0	-80.9	-94.7	-96.6	-115.7	-110.1	-	-92.1
72h Precipitation (mm)	0	10.2	0	0	3	8.2	1.7	28.6

SUMMARY

Monitoring continued until the early onset of winter conditions in November, 2014. A small number of sites were monitored in February, 2015 but the majority of sites were inaccessible or safety concerns would not allow winter sampling.

Most results were within the expected ranges. In several instances where parameters fluctuated slightly the noted changes can be attributed to heavy rainfalls within the 72 hours prior.

Results for York Harbour - Lagoon site differ from other sites as this location is regularly inundated by salt water.

Results for North Shore locations during the month of August appear outside of the expected range. Results returned to normal the following month indicating this was an anomaly with no long term impact.

Specific Conductivity is slightly elevated on all Corner Brook – Bell's Brooks locations. This is more pronounced at locations further upstream.

CONCLUSION

The fresh water monitoring program for 2014-2015 in the Humber Valley and Bay of Islands regions is an excellent baseline data set. The value of this data can only further be strengthened with a continuation of this program throughout a multi-year study.

Ongoing monitoring is needed for early detections of changes in water quality, allowing for timely mitigation to minimize negative impacts on aquatic life and the marine ecosystem.

Continuation of this program over multiple years will allow for trend analysis to determine what long term impact on water quality various environmental, anthropogenic or physical changes to or within the proximity of these water bodies are having.



