

**Petite Rivière
Fish Habitat
Restoration Plan
2015**

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Nova Scotia Youth Conservation Corps



Table of Contents

Introduction	4
Review of 2015 Field Season	4
Restoration Plan Objectives.....	5
Introductory Information – Petite Rivière Watershed	6
Labeled Maps	11
Watershed Boundary Maps:.....	11
Sub-watershed Boundary Maps:	14
Habitat Description and Restoration Opportunities of Birch Brook	19
Water Quality Measurements of Birch Brook	29
Habitat Description and Restoration Opportunities of Brown Brook.....	30
Water Quality Measurements of Brown Brook	32
Habitat Description and Restoration Opportunities of Fredericks Brook.....	33
Water Quality Measurements of Fredericks Brook	37
Habitat Description and Restoration Opportunities of Wallace Brook.....	38
Water Quality Measurements of Wallace Brook	53
Habitat Description and Restoration Opportunities of Wildcat Brook.....	54
Water Quality Measurements of Wildcat Brook	75
Restoration Plan Summary	77
Referenced Material	78
Acknowledgements	79

List of Figures

Figure 1. Petite Rivière watershed boundary located in Nova Scotia.	11
Figure 2. Petite Rivière watershed boundry showing four main lakes and stream.	12
Figure 3. Birch Brook, Brown Branch Brook, Fredericks Brook, Wallace Brook and Wildcat Brook sub-watersheds within the Petite Rivière watershed boundary.	13
Figure 4. Birch Brook sub-watershed located with the Petite Rivière watershed boundary showing assessment site locations along Birch Brook.	14
Figure 5. Brown Branch Brook sub-watershed located with the Petite Rivière watershed boundary showing assessment site locations along Brown Branch Brook.	15
Figure 6. Fredericks Brook sub-watershed located with the Petite Rivière watershed boundary showing assessment site locations along Fredericks Brook.....	16
Figure 7. Wallace Brook sub-watershed located with the Petite Rivière watershed boundary showing assessment site locations along Wallace Brook.	17
Figure 8. Wildcat Brook sub-watershed located with the Petite Rivière watershed boundary showing assessment site locations along Wildcat Brook.....	18

Introduction

This is the second annual report as part of the development of the Petite Rivière Fish Habitat Restoration Plan. This document provides a background of the living biology, chemistry, and physical geology of the Petite Rivière watershed to date, as well as provides the beginnings of a habitat description and restoration opportunities for the watershed.

In the 2015 field season, there were three Coastal Action staff members working on the Petite Rivière Fish Habitat Restoration project which consisted of Project Coordinator, Emma Kinley, Field Coordinator, Taylor Creaser, and Field Technician, Samuel Reeves. The Petite Field Crew spent most of their field season conducting stream assessments, planning stream restoration projects, and installing in-stream restoration structures.

Review of 2015 Field Season

The sub-watershed of Wildcat Brook (approximately 9 km watercourse) has been fully assessed, and has undergone in-stream restoration work in both the 2014 and 2015 field seasons. There have been a total of 8 digger logs and 8 deflectors installed in Wildcat Brook over the last two summers. The Wildcat Shale Pit Remediation and Wetland Expansion Project is currently being conducted in the sub-watershed of Wildcat Brook. This project is being managed in partnership with land reclamation experts East Coast Aquatics Inc. The project site currently has 0.35 ha of the 1.10 ha shale pit fully covered by organic wetland material, and the rest of the site will be covered during the 2016 field season. The site will then be planted with wetland seeds and plants. Duck, bird, and bat boxes are also planned to be placed within the newly constructed wetland to attract wildlife to the area. This remediation will improve the water quality of the brook and create habitat for wildlife. Remediation for this project was planned to be fully completed in the winter of 2015, but has been delayed due to the difficulty of sourcing the correct soil material. Coastal Action has been successful in securing two more sources of material for this coming 2016 field season and hope to have the site fully covered by wetland material and planted by the end of that summer.

In addition to stream assessments conducted on Wildcat Brook, three more streams have been fully assessed in the 2015 field season. The sub-watersheds of Birch Brook (approximately 7 km watercourse), Wallace Brook (approximately 4.5 km watercourse), and Fredericks Brook (approximately 7 km watercourse) have been fully assessed. Stream assessments along the sub-watershed of Brown Brook (approximately 10 km watercourse) began in the 2015 field season but have not been fully completed for this tributary.

The purpose of the assessments conducted throughout the Petite Rivière watershed are to search for potential restoration opportunities to improve fish habitat as well as document the current health of the watershed. This research allows Coastal Action to make informed decisions regarding restoration planning, as well as gain a comprehensive view of overall needs of the watershed and determine specific actions that can be undertaken to improve habitat and environmental conditions within the watershed.

Restoration Plan Objectives

The fish habitat restoration plan being developed for the Petite Rivière watershed is aimed at managing and improving fish habitat conditions and increasing fish populations in order to sustain and create biodiversity within the watershed. This plan focuses on how to improve salmonid habitat, as well as the habitat of other native fish species in the watershed, along with improving water quality.

Coastal Action's 2015 field season plan will continue to conduct monthly sampling of the Petite Rivière watershed to monitor the overall water quality health. Stream assessments will be conducted throughout the watershed in the sub-watersheds of Birch Brook, Fredericks Brook, Wallace Brook, Wildcat Brook, and others if time allows. Shale Pit remediation and wetland expansion will also be conducted in the Wildcat Brook sub-watershed.

Overall Objective	To assess the existing condition of fish habitat within the Petite Rivière watershed in order to determine the likely limiting habitat factors and the fish habitat restoration needs, and to develop a strategy that will include various recommendations for overall watershed improvements focusing on the restoration and improvement of fish habitat on a watershed basis.
Specific Goals	<ol style="list-style-type: none">1. To continue to conduct monthly water quality monitoring of Petite Rivière watershed to monitor the overall water quality health.2. To assess the current state of habitat connectivity, water quality, altered physical habitat, riparian zone quality and function, and surrounding land use practices within the sub-watersheds through stream assessments of Birch Brook, Fredericks Brook, Wallace Brook, and Wildcat Brook.3. To develop a prioritized list of potential projects to either restore or enhance fish habitat within the assessed sub-watersheds of Birch Brook, Fredericks Brook, Wallace Brook and Wildcat Brook.4. To finalize shale pit remediation and wetland expansion plan and conduct remediation with partners and land reclamation experts, East Coast Aquatics Inc., as well as develop a water quality and habitat monitoring plan to record improvements resulting from remediation.

Introductory Information – Petite Rivière Watershed

1	Location in province:	Location: Lunenburg County, Nova Scotia, Southern Upland Region. Nearest Communities: Bridgewater, Camperdown, Crescent Beach, Conquerall Mill, Crousetown, Hebbville, Hebbs Cross, Italy Cross, Laconia, Lapland, New Cumberland, Newcombville, Petite Rivière, and Wileville.
2	Watershed area:	244 km ²
3	Watershed drains into at coordinates of:	Petite Rivière drains into the Atlantic Ocean in Green Bay at 44°13'36.9" N, 64°26'03.2" W
4	Distance of watercourse mouth from ocean:	Petite Rivière discharges into a small estuary and is approximately 1 km from open ocean.
5	Distance of watercourse mouth from head of tide:	40 m
6	Natural watercourse width at mouth:	35 m
7	Length of watercourse:	40 km
8	Elevation at headwaters:	120 m
9	Elevation at mouth:	0 m
10	Lakes within watershed and their sizes:	Little Lake: 0.096 km ² Hebb Lake: 0.42 km ² Garber Lake: 0.21 km ² Newcombe Lake: 0.15 km ² St. George Lake: 0.27 km ² Andrew Lake: 0.98 km ² Lewie Lake: 0.45 km ² Frederick Lake: 0.49 km ² Matthew Lake: 0.25 km ² Milipsigate Lake: 3.0 km ² Minamikeak Lake: 0.77 km ² Moose Lake: 0.57 km ² Wallace Lake: 1.1 km ² Branch Lake: 0.72 km ²

		<p>Fancy Lake: 4.1 km²</p> <p>Hebb Mill Lake: 0.14 km²</p> <p>Kaulback Long Lake: 0.11 km²</p> <p>Little Beaver Lake: 0.34 km²</p> <p>Demone Lake: 0.18 km²</p> <p>Fitch Little Lake: 0.18 km²</p> <p>Fitch Long Lake: 0.33 km²</p> <p>Publicover Lake: 0.14 km²</p> <p>Oikle Lake: 0.021 km²</p> <p>Huey Lake: 0.098 km²</p> <p>Marsh Lake: 0.082 km²</p>
11	Significant tributaries within watershed:	<p>Wamback Mill Brook: 5.5 km</p> <p>Brown Branch Brook: 10.0 km</p> <p>Kaulback Brook: 4.0 km</p> <p>Hebb Mill Brook: 6.5 km</p> <p>Wildcat Brook: 9.0 km</p> <p>Birch Brook: 7.0 km</p> <p>Still Brook: 5.5 km</p> <p>Newcombe Brook: 4.5 km</p> <p>Brandy Mill Brook: 3.0 km</p> <p>Fitch Brook: 5.0 km</p> <p>Frederick Brook: 7.0 km</p> <p>Wallace Brook: 4.5 km</p>
12	Most common substrate type and size:	The substrate varies throughout the watershed: fines, medium, cobble, boulder, and bedrock.
13	Soil types and geological characteristics:	<p>Soil types: Farmville sandy loam (drumlin phase), Bridgewater sandy loam, LaHave gravelly sandy loam, Halifax sandy loam, swamp (peaty material), rock land, Wolfville loam (drumlin phase), and Middlewood sandy loam.</p> <p>Geological characteristics: Meguma Group – Halifax Formation (slate, siltstone) and Goldenville Formation (greywacke, slate).</p>
14	Average water temperature in summer (June-September):	<p>20.04°C</p> <p>Note: Average water temperature based on data collection from 18 sites throughout the Petite Rivière</p>

		from 2011-2015.
15	Peak water temperature:	The peak water temperatures occur in the summer months of August and September. The highest recorded water temperature was 26.7°C on August 10, 2012 in Wallace Brook.
16	pH range:	3.10 – 7.99 Note: This range is taken from the 18 sites Coastal Action samples monthly from 2011-2015. The lowest pH recorded in Kaulback Brook and the highest recorded at the Head of Tide.
17	Native fish species present:	American eel, Atlantic salmon, Atlantic whitefish, Gaspereau, Brook trout, Lake trout, Brown bullhead, Creek chub, Lake chub, Blacknose shiner, Common shiner, Golden shiner, White sucker, Yellow perch, White perch, and Banded killifish. Note: This is not a complete list and is not specific to the Petite Rivière Watershed at this time. It will be updated following Electrofishing surveys in 2016.
18	Non-native fish species present:	The two non-native fish species found in the Petite Rivière watershed are: Chain Pickerel and Smallmouth Bass. Smallmouth Bass is found in several lakes in the Petite Rivière Watershed including: Andrew, Branch, Fancy, Fitch Little, Fitch Long, Hebb, Lewie, Milipsigate, Minamkeak, and Wallace Lakes. Chain Pickerel can be found in: Fancy, Hebb, Milipsigate, Garber, Newcombe, and Little Lake. Note: These invasive species have full capability to spread into other lakes within the Petite Rivière watershed making this list subject to change.
19	Endangered / threatened / at risk species present (aquatic or non-aquatic):	The following species have been marked as either endangered / threatened / at risk within the Municipality of the District of Lunenburg: Ipswich Sparrow (NS - vulnerable), Blanding's turtle (SARA - endangered), Eastern ribbonsnake (SARA - threatened), Southern Uplands Atlantic salmon (COSEWIC - endangered), Boreal felt lichen (SARA - endangered), Monarch butterfly (SARA - special concern), Rockrose (NS - endangered), Golden crest (SARA - threatened), Long's bulrush (SARA – special concern), and Mainland moose (NS - endangered). Atlantic whitefish are labeled as endangered by the Species at Risk Act and by the province of Nova Scotia. The only remaining population is found in the Petite Rivière Watershed in Hebb, Millipsigate and Minamkeak Lakes. Typically, they spawn in freshwater and return to the ocean, but dams such as the Hebb Dam prevent them from returning to the ocean making them landlocked. Invasive species such as

		Smallmouth Bass and Chain Pickerel threaten their survival as well as water acidification and pollution.
20	Annual fish stocking:	<p>Spring Stocking: June 6, 2014 speckled trout were stocked in Wallace Lake.</p> <p>Fall Stocking: None</p>
21	Angling regulations for the watershed:	<p>April 1 - June 14: bag limit two (2) trout, single hook lure or artificial fly, natural bait is prohibited.</p> <p>June 15 - end of all fishing seasons, artificial fly only.</p> <p>September 1 - September 30: all speckled trout must be released from the Highway 331 Bridge upstream to Hebb Lake, not including tributaries.</p> <p>April 1 - September 30: Wallace Brook, from Petite Rivière at Crousetown to a point 180 m upstream, including tributaries is closed.</p>
22	Forestry activities and impacts:	<p>Small scale harvesting of the forests is occurring at various locations throughout the watershed. A minimum riparian zone of 30 m should ideally be kept along the perimeter of the watercourse. Under the N.S. Wildlife Habitat and Watercourses Protection Regulations, a forestry operator must maintain a 20 m riparian buffer along the boundary of all watercourses and limit activity that could deposit sediment in the watercourse. For the most part this perimeter is honored along the Petite Rivière.</p> <p>Forest harvesters are also required to maintain a 5 m 'special management zone' along the boundaries of all watercourses less than 50 cm wide and a 20 m zone for any watercourse greater than 50 cm wide. This limits use of forestry vehicles, ensures the basal area of living trees is greater than 20 m² per hectare and ensures there is no opening in the tree canopy larger than 15 m within the 'special management zone'.</p> <p>Logging practices can have a major impact on water quality and wildlife habitat in the area; and without a healthy riparian area fish habitat may be lost. These riparian zones provide shade, food, wildlife habitat, absorption of runoff and pollutants, as well as assisting in bank stabilization.</p>
23	Urban/residential development impacts:	<p>Petite Rivière watershed area is mostly comprised of rural residential properties. The densest commercial and residential development occurs closest to the Town of Bridgewater and at the mouth of the river in the community of Petite Rivière.</p> <p>There are residential homes built along the watercourse that have not maintained an adequate shoreline riparian buffer, clearing land to the water's edge. These practices can lead to high erosion rates, sedimentation, and the introduction of fertilizers and pollutants from runoff and infiltration. There is also the concern of non-compliant or malfunctioning septic systems.</p>
24	Agricultural impacts:	There are some farmland areas along the Petite Rivière watercourse that presently have a minimal impact on the water quality of the river. The main concerns are farms without proper fencing allowing livestock

		to freely access waterways, causing contamination and trampling of riparian zones. There is also concern over runoff from fertilizer and pesticide use into the river.
25	Other industry impacts:	<p>The upper part of the watershed has been used for mining operations both past and present. The most notable occurrence is a shale pit near Wileville in the uppermost part of the Petite Rivière Watershed. Excavation for the pit ended approximately 20 years ago, leaving a 1.1 ha pit. This pit is surrounded on three sides by wetland, and the area has frequent flooding which has access to the Wildcat Brook, the headwaters of the watershed. Pyritic shale oxidizes making this water highly acidic and when it flows into the brook, it lowers the pH. Steps are being taken to turn this area into a wetland to limit the pyritic shale's access to water and oxygen. There are several abandoned mine openings near Milipsigate Lake, some of which are still privately owned and some of which are on Crown land. These mines were primarily gold, some were open pit and some were shaft mines. Any exposed metal with sulphide minerals has potential for acid mine drainage, which can get into the watercourse, lowering pH. There are six areas with exploration licenses in good standing around Milipsigate Lake as of January 19, 2016.</p> <p>There are also impacts from acid rain caused by industrial emissions produced in Central Canada and the US Midwest. Nova Scotia soils have poor pH buffering ability and the acidification of watercourses decreases their ability to support aquatic life. Many rivers in Southwestern NS have been significantly impacted by acid precipitation due to the poor buffering capacity of the soils in this region. Low pH can also cause metals to precipitate out of soils and into water where they then accumulate in the gills of salmonids causing physical stress in the fish.</p>
26	Historical conditions, impacts, and considerations:	Historical mining operations for shale gravel have left behind open shale pits that pool highly acidic waters. During heavy rainfall events these acidic waters have been observed flowing into Wildcat Brook causing acidic shock to the system.
27	Barriers present on the main river stem:	Historically there have been six dams on the main river that have acted as barriers to fish passage and even more still on the smaller tributaries of the Petite Rivière. There are still five existing dams on the main river channel, one of which has a fish ladder: Crousetown Dam (runaround channel), Hebb Lake Dam (fish ladder), Milipsigate Lake Dam, Minamkeak Lake Dam, and Weagle's Dam.
28	Other Information:	Petite Rivière holds the drinking water reservoir for the Town of Bridgewater, and also includes the only known wild population of the endangered Atlantic whitefish, making the health of the watershed highly important.

Labeled Maps

Watershed Boundary Maps:

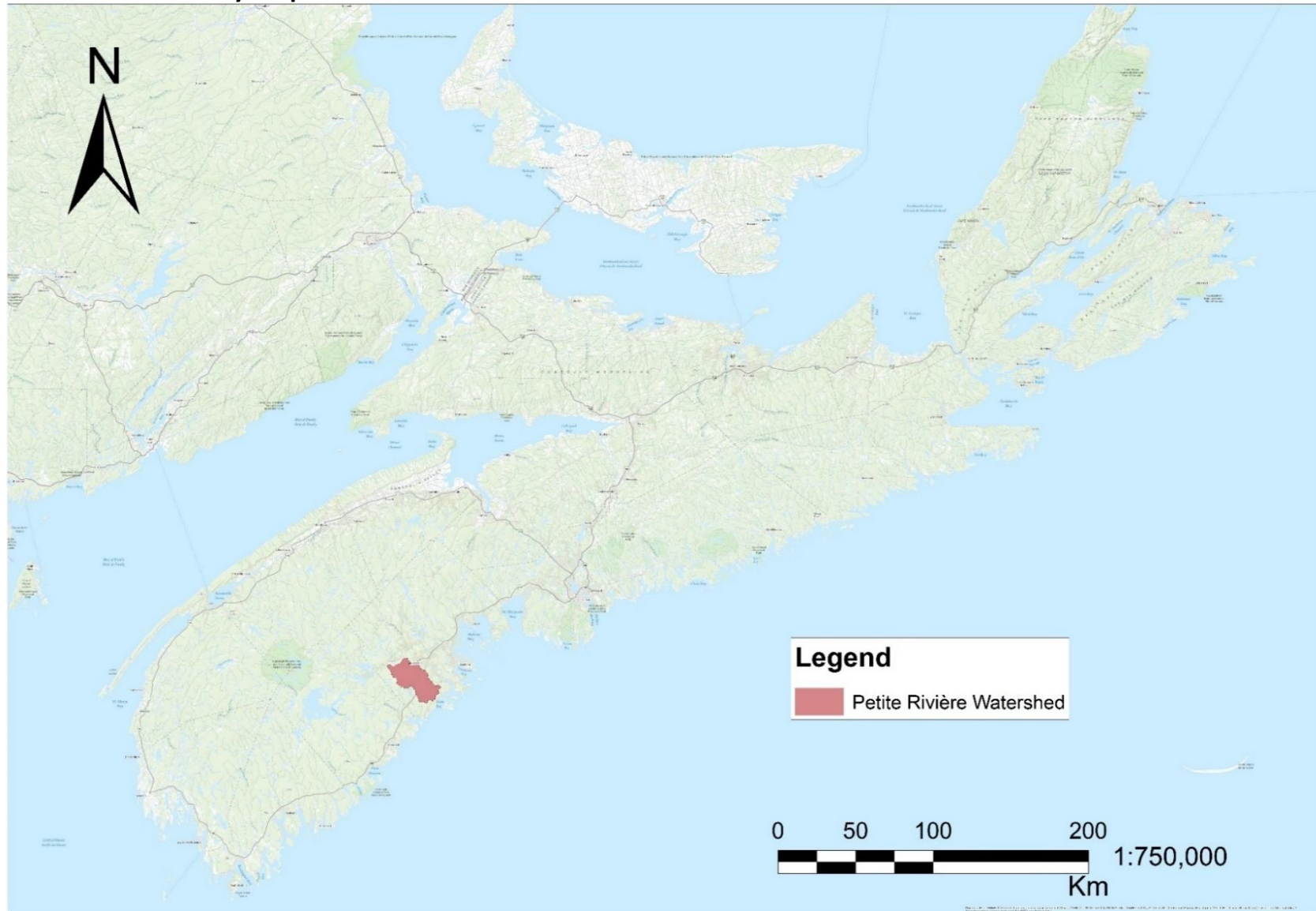


Figure 1. Petite Rivière watershed boundary (red) located in Nova Scotia.

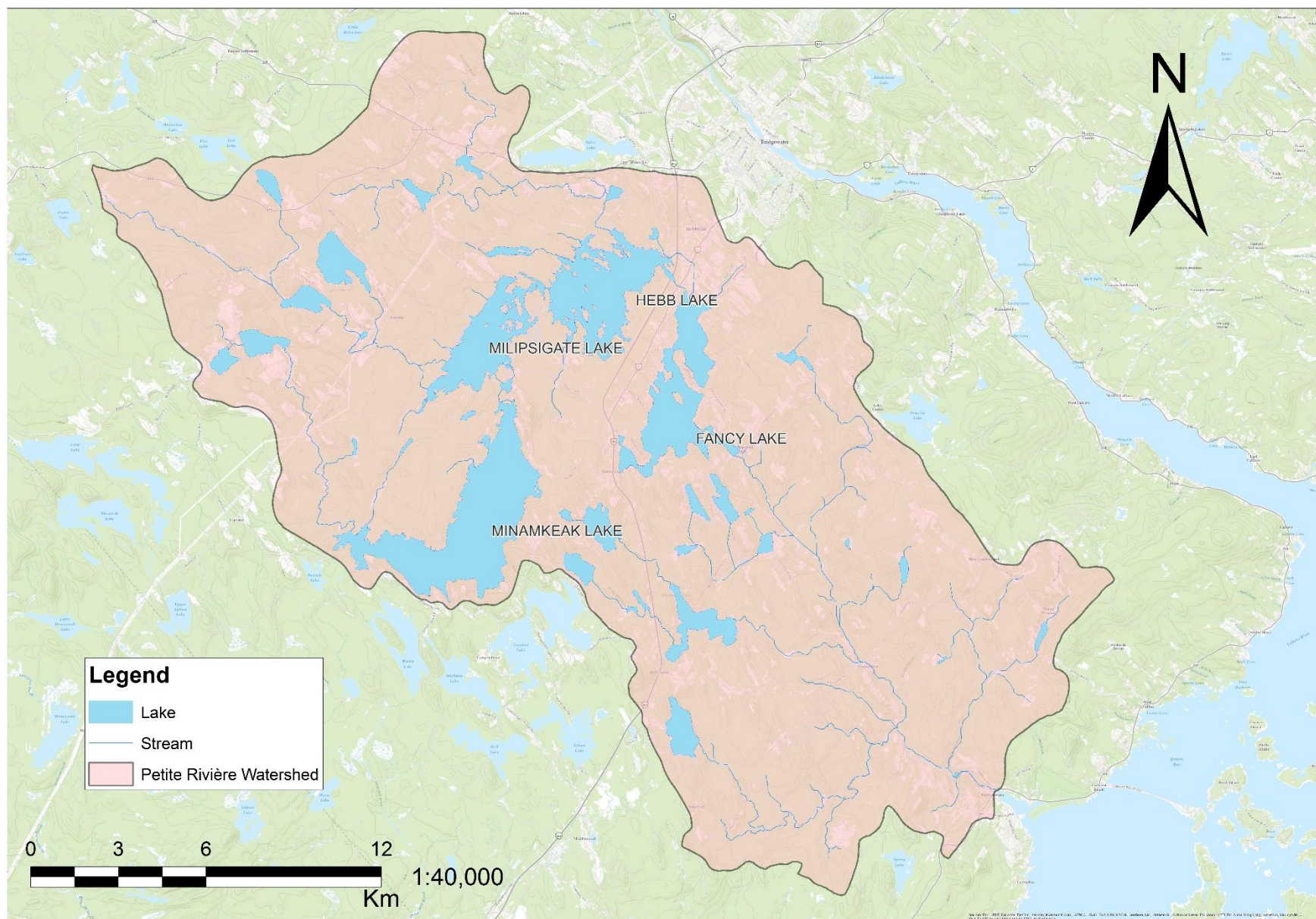


Figure 2. Petite Rivière watershed boundry (red) showing four main lakes and stream.

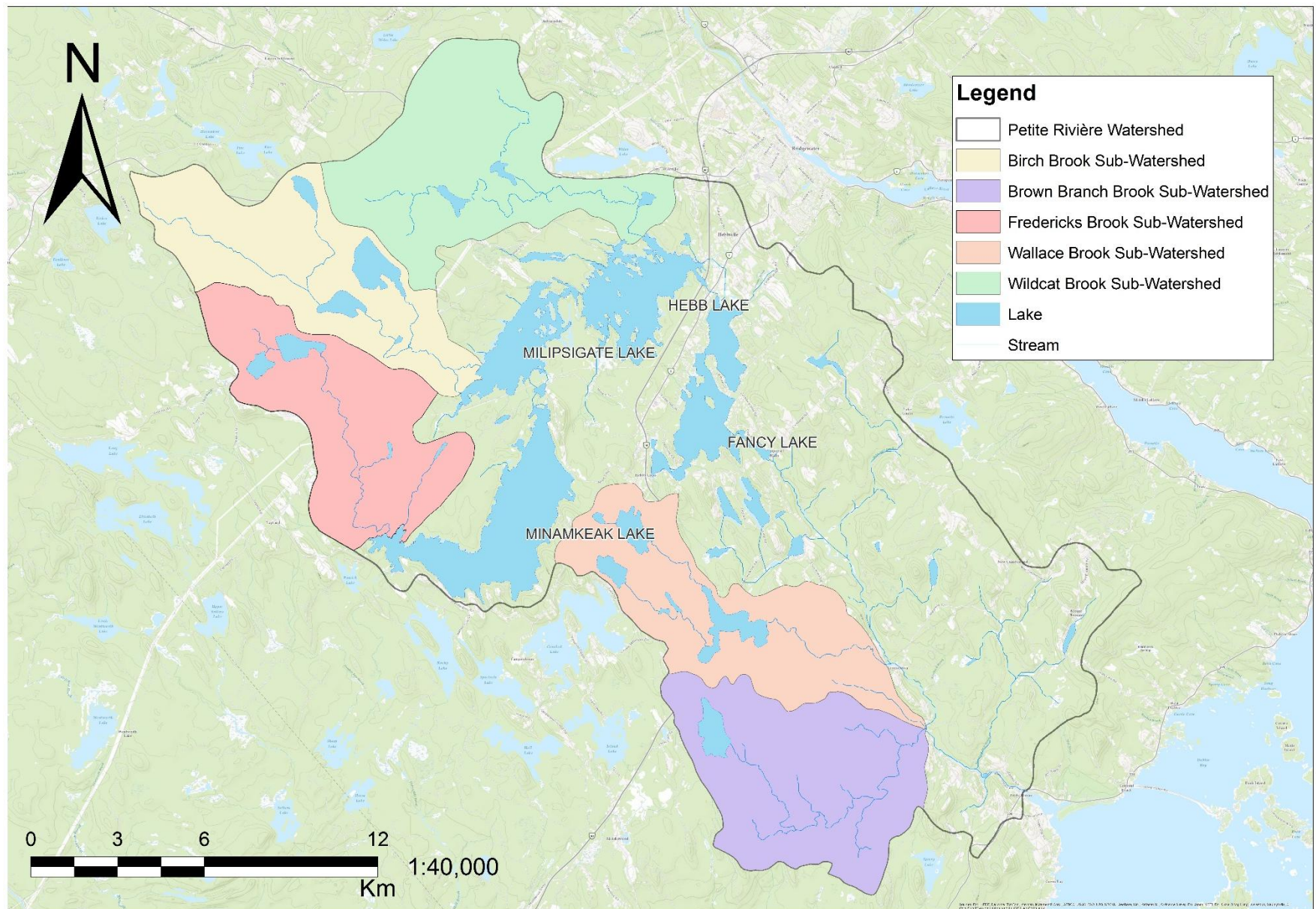


Figure 3. Birch Brook (yellow), Brown Branch Brook (purple), Fredericks Brook (red), Wallace Brook (orange), and Wildcat Brook (green) sub-watersheds within the Petite Rivière watershed boundary (black outline).

Sub-watershed Boundary Maps:

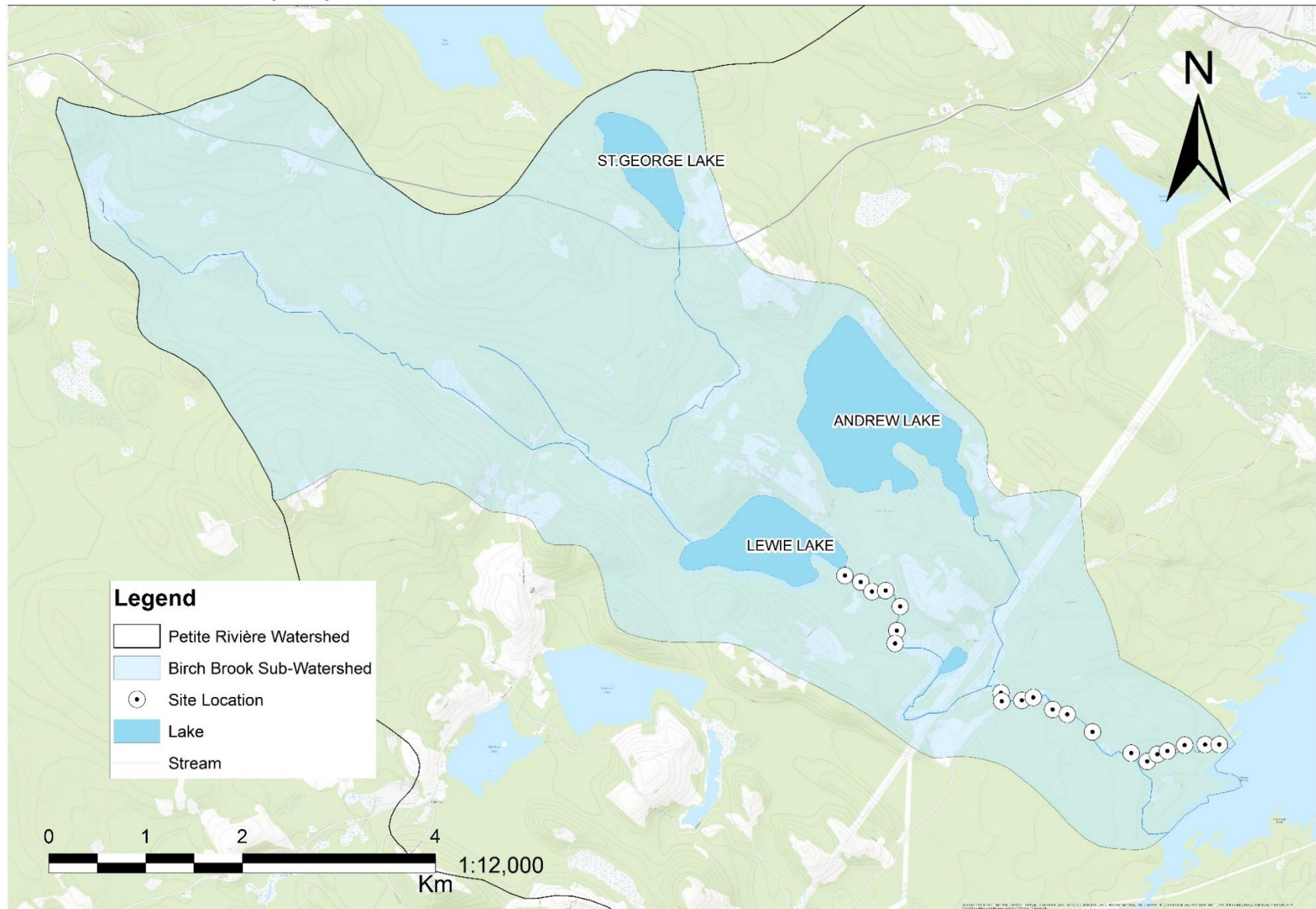


Figure 4. Birch Brook sub-watershed (blue) located within the Petite Rivière watershed boundary (black outline) showing assessment site locations along Birch Brook.

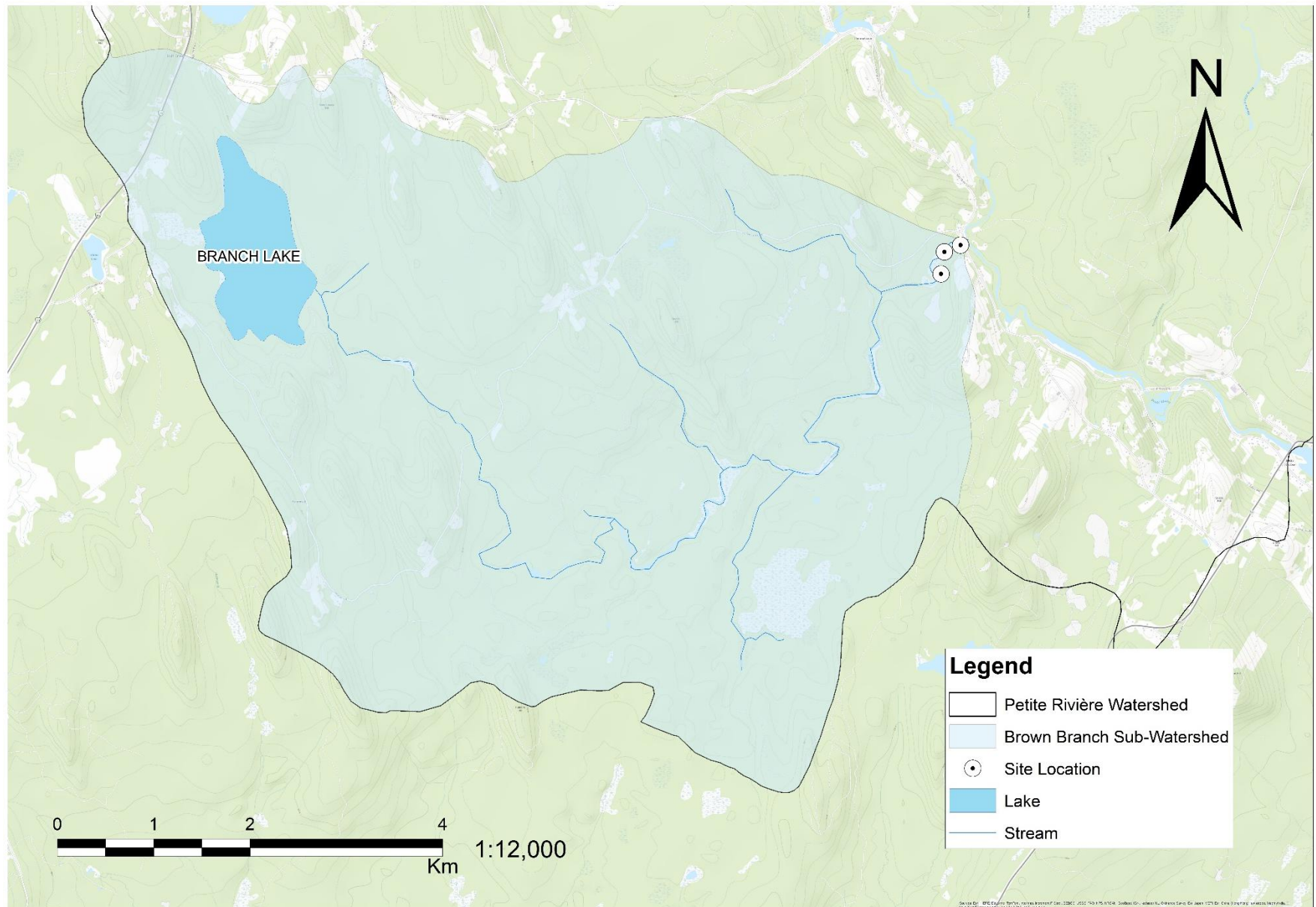


Figure 5. Brown Branch Brook sub-watershed (blue) located within the Petite Rivière watershed boundary (black outline) showing assessment site locations along Brown Branch Brook.

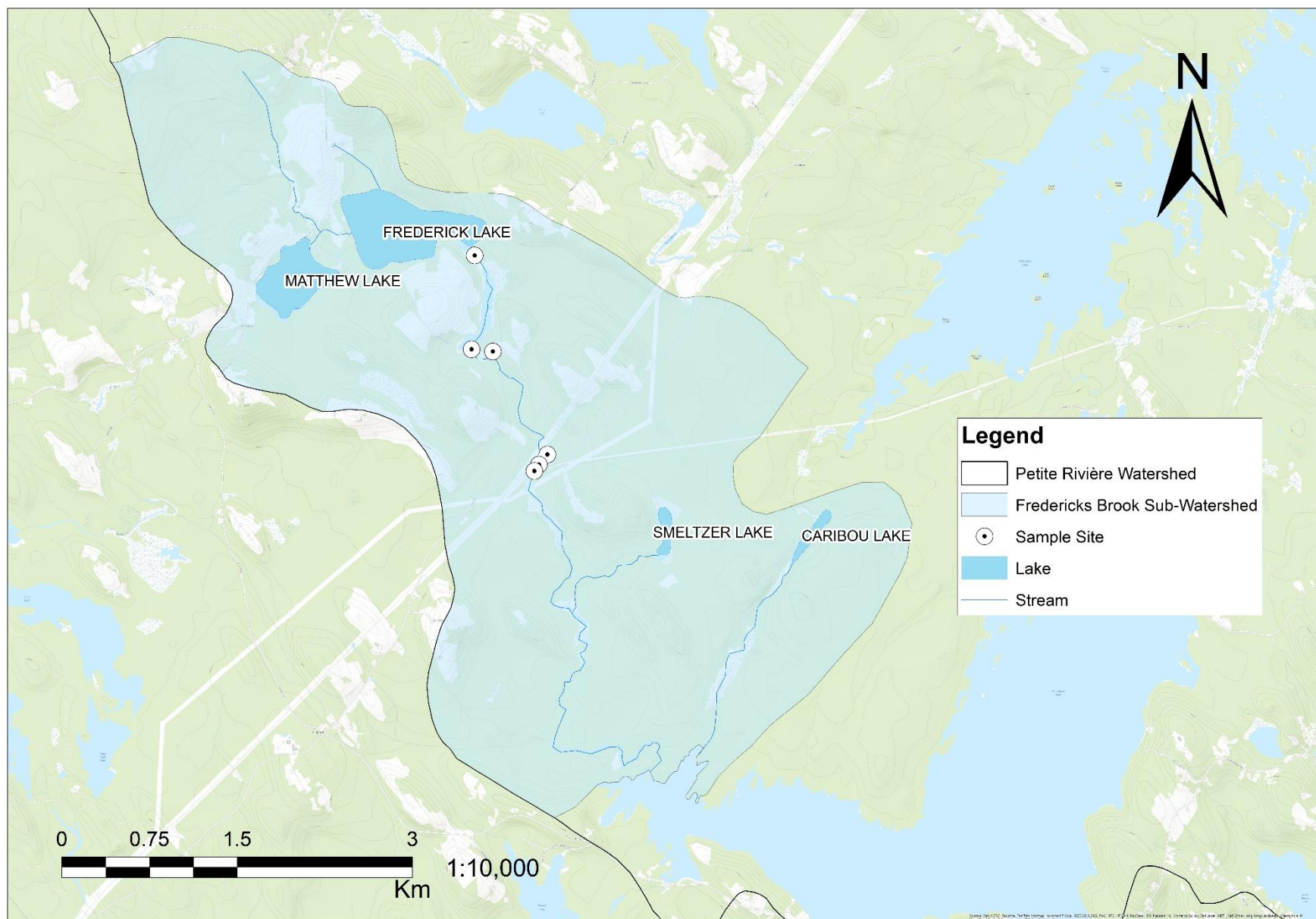


Figure 6. Fredericks Brook sub-watershed (blue) located within the Petite Rivière watershed boundary (black outline) showing assessment site locations along Fredericks Brook.

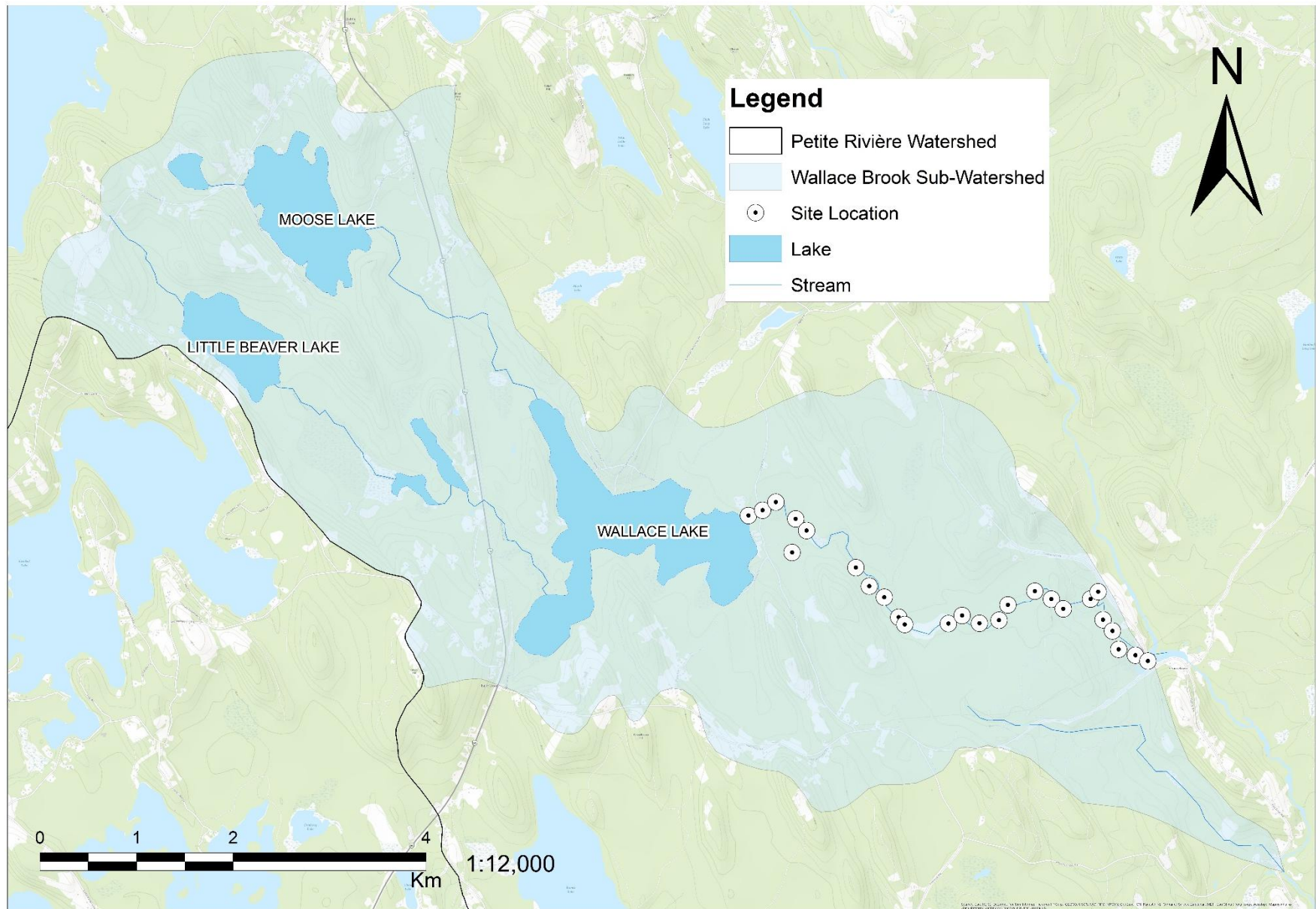


Figure 7. Wallace Brook sub-watershed (blue) located within the Petite Rivière watershed boundary (black outline) showing assessment site locations along Wallace Brook.

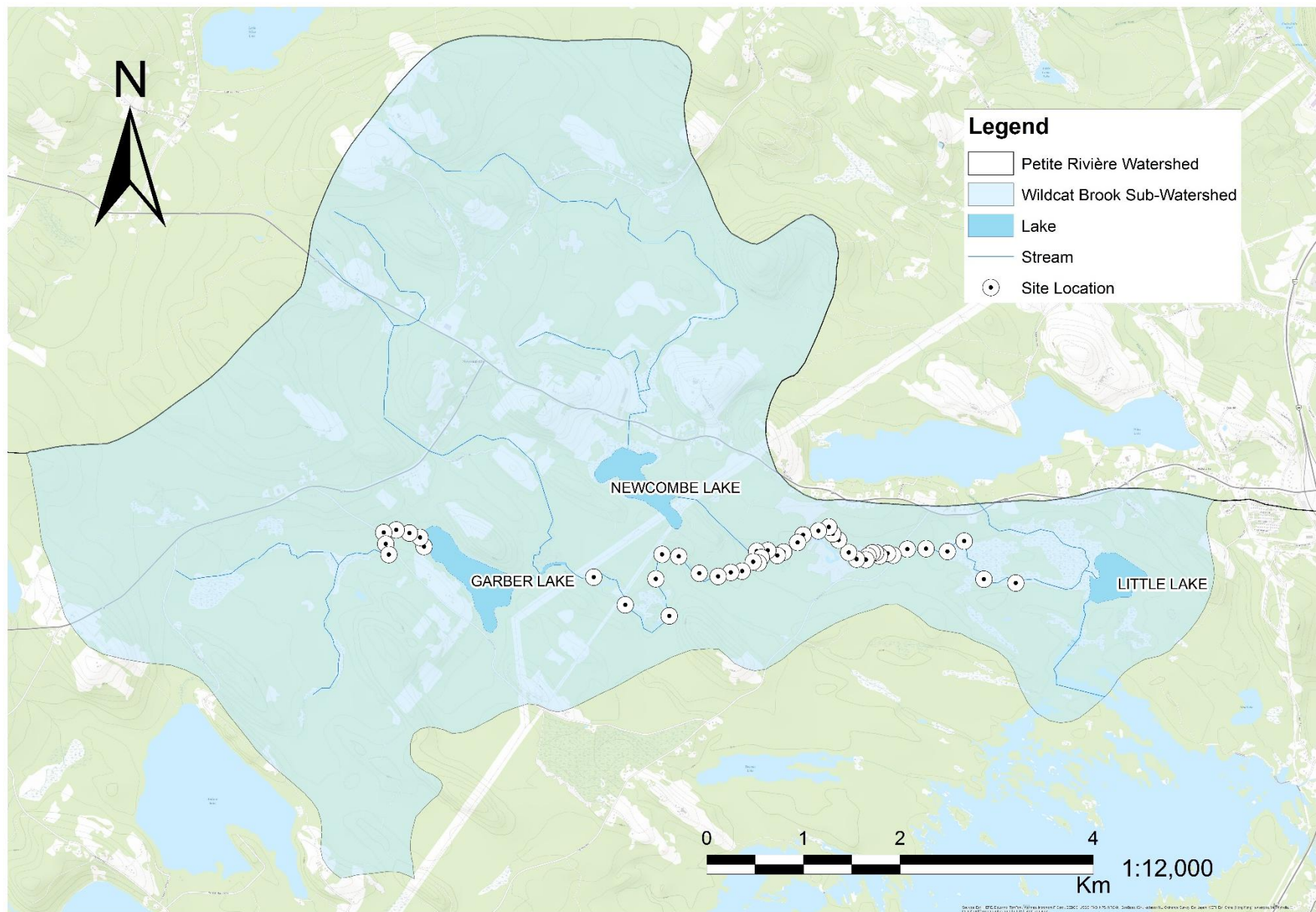


Figure 8. Wildcat Brook sub-watershed (blue) located within the Petite Rivière watershed boundary (black outline) showing assessment site locations along Wildcat Brook.

Habitat Description and Restoration Opportunities of Birch Brook

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
Section 1	Stream opening from Lewie Lake, Laconia						
BR001	Opening into Lewie lake, stream is very flooded and above bankfull.	0368414 4910981	Left Bank: at water level, no defined bank, very open and flat, red maple flood plain, grass and sedges. Right Bank: no defined banks and lots of inlets and grass, on an incline with leaf and moss litter, mixed wood forest. Water Description: tannin, moving quite rapidly, in a run habitat with submerged aquatic vegetation. 50% shaded. Wetted Width: 8 m Bankfull: 10 m Floodplain: +20 m Average Depth: 70 cm Thalweg: 90 cm Substrate: 5% boulder, 40% cobble, 40% medium, 15% fines. Riparian Health Assessment Score: 57	Forest with recreational trails	n/a	n/a	n/a
Section 2	Bridge for Jefferson Road, Laconia crosses stream						
BR002	Bridge crossing stream on road. Very flooded and wide (20 m). section upstream narrows significantly	0368531 4910931	Left Bank: similar to the right but with more grasses and ferns growing in the forest, it is very flat with more flooding, making large pools. Right Bank: mixed wood with ferns and grasses near the bank with maple and some large softwoods. Water Description: water fast moving, riffle on the left side, large braid downstream of bridge that is partially flooded in the middle with submerged vegetation. 60% shaded. Wetted Width: 20 m Bankfull: 15 m Floodplains: +20 m Average Depth: over 1 m Substrate: Mostly cobble and boulder but too deep to give an estimate Riparian Health Assessment Score: 42	Bridge, forested area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
BR003	Downstream of one large and one small braid. Large pool upstream on the right. Run after braids with small pool on left downstream.	0368613 4910858	Left Bank: very flat and at the same level as water, maple and grasses are flooded up to 20 cm deep, opens into a clearing and bushed 20 m back. Right Bank: not a solid bank, a floodplain of small red maples and other mixed wood species, cross and sedges present. Water Description: tannin, very fast flowing with a strong current, submerged vegetation. 80% shaded. Wetted Width: 10 m Bankfull: 10 m Floodplain: +20 m Average Depth: 65 cm Thalweg: 75 cm Substrate: fines, mediums, and organic matter, possibly boulder. Too deep to give estimate Riparian Health Assessment Score: 57		n/a	n/a	n/a
BR004	Stream runs through a wetland and becomes very wide and deep.	0368714 4910864	Left Bank: very flat, swampy and open, very tall bushes and sedges, forest further back, stream meanders several times upstream. Right Bank: very flat and at water level, no defined bank, bushes, marshy and swampy, thick forest ~10 m back from the stream. Water Description: dark and moving slowly. Wetted Width: ~35 m Bankfull: 36 m Floodplain: +40 m Average Depth: too deep to estimate Substrate: very soft with lots of organics. Riparian Health Assessment Score: 51	Wetland area	n/a	n/a	n/a
BR005	Large floodplain, with forest canopy. Site is just upstream from a split in the stream with	0368820 4910744	Left Bank: large floodplain, Red Maple, Birch, lots of sedges and green vegetation. Right Bank: slightly higher elevation than the left bank, White Pine and red Maple, Water Description: tannin, strong current, is fast flowing over a riffle. 85% shaded. Wetted Width: 5.5 m	Grave stone further back on bank, forested area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	braids and joins further downstream. Large boulders just downstream.		Bankfull: 8 m Floodplain: +20 m Average Depth: 45 cm Thalweg: 55 cm Substrate: 40% boulder, 30% cobble, 20% coarse, 5% medium and 5% fines. Riparian Health Assessment Score: 57				
BR006	There is a meander and a large floodplain on either side of the stream. There is lots of woody debris on the banks.	0368791 4910567	Left Bank: ~10 cm high, lots of woody debris, large dead tree, mostly softwood with few hardwood. Right Bank: ~15 cm high, more hardwood than the left bank, floodplain with grasses and sedges. Water Description: dark and tannin, a riffle-run habitat, fast moving current. 90% shaded, 25% embedded. Wetted Width: 7 m Bankfull: 8 m Floodplain: +20 m on the left bank and 15 m on the right bank. Average Depth: 60 cm Thalweg: 80 cm Substrate: 30% boulder, 40% cobble, 20% coarse, 5% medium, and 5% fines Riparian Health Assessment Score: 56	Forested area	n/a	n/a	n/a
BR007	Very open and running through a wetland, not many trees, mainly shrubs and grasses.	0368777 4910472	Left Bank: a long stretch of wetland, ~200 m to the forest, one small red maple. Right Bank: few trees and it is a far less distance to the forest from the stream than the left bank, some wetland area, grasses and shrubs are present. Water Description: very deep, dark, and slow flowing. 10% shaded. Wetted Width: 5.5 m Bankfull: 7 m Floodplain: +200 m on the left bank and +50 m on the right bank. Average Depth: ~ 2 m, no thalweg Substrate: too deep to estimate Riparian Health Assessment Score: 46	Wetland area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
BR008	Stream enters the forest and narrows after running through the wetland for a long distance. Heavy beaver activity.	0369554 4910092	Left Bank: ~2 m high and steeply sloping, mixed wood, lots of moss and needle litter. Right Bank: ~1 m high and very steep, mixed wood and lots of tall and dense wetland bushes just upstream. An old man-made rock wall makes the banks very steep. Water Description: tannin and deep, very rapidly flowing in a riffle-run pattern, large boulders present on the bank. 95% shaded. Wetted Width: 5 m Bankfull: 7 m Floodplain: 7 m Average Depth: 40 cm Thalweg: 50 cm Substrate: 20% boulder, 30% cobble, 20% coarse, 25% medium and 5% fines Riparian Health Assessment Score: 54	Wetland area, and beaver activity	n/a	n/a	n/a
BR009	Confluence with very slow flowing water from the quarry upstream. There is a 90 degree meander with a braid and rushing water upstream. There is a bridge crossing Lapland Road downstream.	0369558 4910030	Left Bank: flat for ~2 m and then begins to incline to ~3 m high, moss, grasses, and mixed wood present. Right Bank: ~3 m tall and very steep, composed of many large boulders and some trees. The road is about 10 m from the bank. Water Description: much shallower than upstream but still fast flowing, deeper by the bridge. Wetted Width: 7 m Bankfull: 7.5 m Floodplain: +20 m on the left bank and 5 m on the right. Average Depth: 25 cm Thalweg: 35 cm. Substrate: 20% cobble, 50% coarse, 25% medium, and 5% fines Riparian Health Assessment Score: 46	Bridge and road	n/a	n/a	n/a
Section 3	Bridge crossing Lapland Road, Laconia						

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
BR010	Large set of fast flowing riffles to a run with a huge pool on the right side. Tree is growing in the middle of the stream.	0369708 4910033	Left Bank: open with a less defined bank, flat with grasses and floodplain trees such as red maple. Some flooding has occurred. Right Bank: ~10 cm high, has a 10x8 m pool and is very flat on top with some grasses and a mixed wood forest. Water Description: a riffle-run-pool habitat, very dark and deep, moderate flow after the riffles, 70% shaded. Wetted Width: 8 m Bankfull: 10 m upstream of the pool Floodplain: +20 m Average Depth: too deep to estimate Substrate: too deep to estimate Riparian Health Assessment Score: 57	Forested area	n/a	n/a	n/a
BR011	Rapids to a riffle flowing into a still water with a floodplain extending on either side. All hardwood tree species present.	0369792 4910054	Left Bank: ~10 cm high, large floodplain, with lots of green vegetation and red maples. A small braid quickly rejoins the stream. Right Bank: a large floodplain with red maples and green vegetation, lots of boulders on the shore with a small, short braid. Water Description: dark and tannin, fast moving over a set of rapids, then slowing and opening into a still-water. 90% shaded. Wetted Width: 9 m Bankfull: 9.5 m Floodplain: +20 m Average Depth: 30 cm Thalweg: 45 cm Substrate: 80% boulder, 5% cobble, 5% coarse, 5% medium and 5% fines. Riparian Health Assessment Score: 57	Forested area	n/a	n/a	n/a
BR012	Site is just downstream of a wetland. Series of braids throughout small elevations of land cause	0369934 4909961	Left Bank: ~10 cm high, very flat, with a large floodplain and composed mainly of hardwoods, with the exception of a large pine. Right Bank: ~10 cm high, has a higher elevation than the left. There are more softwoods with a mix of hardwoods. Water Description: dark and tannin, fast moving	Forested area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	water to split into several directions. Red maple trees present. Fallen tree in the stream.		with lots of riffles. 95% shaded, 20% embedded. Wetted Width: 9 m (the braid) Bankfull: ~30 m Floodplain: +30 m Average Depth: 40 cm Thalweg: 50 cm Substrate: 85% boulder, 5% cobble, 5% coarse, 2.5% medium and 2.5% fines Riparian Health Assessment Score: 53				
BR013	Stream becomes very wide and opens up into a wetland.	0370042 4909923	Left Bank: wetland stretches ~30 m into the wooded area, with a few more trees present than the right bank. Lots of wetland vegetation present. Right Bank: wetland stretches ~30 m back into the woods. Water Description: deep, slow moving, and very dark. 10% shaded. Wetted Width: ~30 m Bankfull: ~40 m Floodplain: +30 m Average Depth: too deep to estimate Substrate: too deep to estimate Riparian Health Assessment Score: 52	Wetland area	n/a	n/a	n/a
BR014	Large pool, very deep, floodplain on either side of the stream. Lily pads, mainly hardwoods present.	0370226 4909790	Left Bank: ~15 cm high, has wetland characteristics. Right Bank: is flat with hills further back, flooded and very shaded. Water Description: deep pool with dark water. 60% shaded. Wetted Width: not taken Bankfull: not taken Floodplain: +20 m Average Depth: ~80 cm Thalweg: over 1 m Substrate: 50% boulder, 20% cobble, 20% coarse, 10% medium and 10% fines. Riparian Health Assessment Score: 54	Wetland area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
BR015	Stream is running through a wetland. Branches off into a smaller section. May not be the main branch of Birch Brook	0370510 4909628	Left Bank: level with water, multiple small inlets with no defined bank. More open than right bank. Right Bank: level with water, and very flat with bushes and grass. Sparse forest of mostly hardwood further back. Water Description: Very deep, barely flowing. 20% shaded. Wetted Width: 30 m Bankfull: 40 m Floodplain: +20 m Average Depth: too deep to estimate Substrate: too deep to estimate Riparian Health Assessment Score: 50		n/a	n/a	n/a
BR016	Main branch of Birch flowing through forest. Very wide wetland upstream. Split several times upstream. 180 degree meander to the right.	0370628 1909565	Left Bank: Level with water, small confluence or braid with another branch of Birch Brook. Mixed hard and soft wood and less grass than the right bank. Right Bank: very flat and at water level with grasses and fern, red maple and pine and other mixed wood. Water Description: fast flowing riffles. Medium sized pool on right side, stream widened significantly from wetland. 80% shaded, 5% embedded with caddisflies present. Wetted Width: 6 m Bankfull: 8 m Floodplain: +20 m Average Depth: 15 cm Thalweg: 20 cm Substrate: 50% boulder, 20% cobble, 15% coarse, 7.5% medium, 7.5% fines. Riparian Health Assessment: 56	Wetland upstream	n/a	n/a	n/a
BR017	Large section that split off upstream joins the main branch. Downstream	0370703 4909615	Left Bank: Fairly flat, level with stream. Grasses, ferns and standing dead wood. Hard and softwood mix. Right Bank: ~0.5 m high, slightly inclined. Dense forest of mixed wood, lots of fern and small softwood trees. Water Description: Very dark, moving at a	Forested area, natural digger log present	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	end of main branch braid, braids again further downstream and widens where they meet.		moderate speed. Riffles upstream flowing into short run where they meet. Natural digger log downstream, small pool on left bank. 10% embedded with mayfly present. Wetted Width: 8 m Bankfull: 10 m Floodplain: +20 m Depth: 50 cm Thalweg: 60 cm Substrate: 50% boulder, 25% cobble, 10% coarse, 10% medium. 10% fines Riparian Health Assessment: 56				
BR018	3 braid and a confluence (probably section of Birch Brook) meet upstream. Stream meanders left 90 degrees and widens significantly. Stream splits and braids into 3 different sections downstream	0370779 4909638	Left Bank: level with water height, large pool, with ferns, grasses and red maple. Right Bank: ~ 30 cm and undercut, very flat with lots of ferns and grasses and red maple and pine. Water Description: very dark and deep, flowing moderately but much slower than upstream. Some ferns submerged near shoreline. Wetted Width: 12 m Bankfull: 15 m Floodplain: +20 m Average Depth: 60 cm Thalweg: 80 cm Substrate: Mainly boulder and organics however the water is too deep to get an accurate estimate. Riparian Health Assessment: 57	Forested area	n/a	n/a	n/a
BR019	Lots of braiding in stream. 4 braids join together to create a large pool on the left bank. Each braid has a set of riffles leading	0370907 4909679	Left Bank: more open than the right bank. Pool 7x10 m. Grasses, ferns, mostly maple trees with a few large pine. Right Bank: ~10 cm high, and very flat. Grasses, sedges, white ash, pine, fir, birch. Water Description: fast flowing when braided, slows to a moderate pace when they meet. 70% shaded. Wetted Width: ~3 m at braids, +20 at	Forested area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	into the pool and another set downstream		confluence Bankfull: ~20 m Floodplain: +20 m Average Depth: 50 cm Thalweg: 60 cm Substrate: 90% boulder, 10% fines Riparian Health Assessment: 57				
BR020	Fallen tree caused soil to lift, large pool isolated to right side with braids flowing back to main stream	0371059 4909680	Left Bank: flat, with large floodplain. Red maples, grasses. Right Bank: flat with large floodplain, 10x12 m pool, lots of grasses and ferns. Water Description: dark/ tannin, fast moving, riffle flowing straight as well as into the side pool. 40% shaded, 30% embedded, with caddisfly and stonefly present. Wetted width: 4 m Bankfull: 4.5 m Floodplain: +20 m Average Depth: 30 cm Thalweg: 50 cm Pool Depth: 80 cm Substrate: 75% boulder, 15% cobble, 5% medium, 5% coarse Riparian Health Assessment: 54	Wetland area	n/a	n/a	n/a
BR021	Just up from inflow into Millipsigate Lake. Has riffles leading into falls to a large pool into lake inflow.	0371164 4909678	Left Bank: flat, with a large floodplain. Red maple, lots of ferns and grasses. Right Bank: flat, floodplain. Very large birch, ferns and young oak regeneration, and red maple. Water Description: dark/ tannin. There is a small braid and pool at the midpoint of the falls. The water is fast moving with riffles, falls, a pool and lots of braiding. 95% shaded, 10% embedded, with mayfly and stonefly present. Wetted Width: 10 m Bankfull: 11 m Floodplain: +20 m Average Depth: 30 cm Thalweg: 45 cm	Inflow into Millipsigate Lake	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Substrate: 80% boulder, 5% cobble, 5% coarse, 5% medium, 5% fines Riparian Health Assessment: 57				

Water Quality Measurements of Birch Brook

Site Code	Date	Time (24 Hour)	Temperature (°C)	Pressure (mmHg)	Dissolved Oxygen (%sat)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	Total Dissolved Solids (g/L)	Salinity (ppt)	pH	Notes
BR001	05-June-15	9:53	14.0	758.4	90	9.3	31	20.15	0.01	4.64	
BR002	05-June-15	10:25	14.4	758.4	85	8.7	24	15.6	0.01	4.85	
BR003	05-June-15	10:45	14.9	758.4	90	9.1	31	20.15	0.01	4.72	
BR004	05-June-15	11:00	12.9	758.0	32	3.4	34	22.1	0.02	4.98	
BR005	05-June-15	11:34	15.4	757.8	90	9.0	24	15.6	0.01	-	pH out of range
BR006	05-June-15	11:48	15.7	757.8	88	8.8	31	20.15	0.02	4.72	
BR007	05-June-15	12:47	16.0	757.7	86	8.5	24	20.15	0.01	4.71	
BR008	08-June-15	9:38	14.7	757.8	81	8.3	28	14.95	0.01	4.20	
BR009	08-June-15	9:58	14.7	758.0	85	8.6	23	14.95	0.01	4.58	
BR010	08-June-15	10:17	14.8	758.0	84	8.6	28	18.20	0.01	4.86	
BR011	08-June-15	10:32	14.8	758.0	88	8.9	28	18.20	0.01	4.7	
BR012	08-June-15	10:57	15.0	757.7	86	8.7	28	18.20	0.02	4.91	
BR013	08-June-15	11:30	13.2	757.5	26	2.7	31	20.15	0.01	-	pH out of range
BR014	08-June-15	11:47	15.4	757.7	76	7.5	28	18.20	0.01	5.21	
BR015	08-June-15	13:10	16.4	757.4	66	6.4	69	44.20	0.03	5.82	
BR016	08-June-15	13:36	16.5	757.0	94	9.2	28	18.20	0.01	4.80	
BR017	08-June-15	14:05	16.7	757.1	90	8.8	28	18.20	0.01	5.08	
BR018	09-June-15	9:15	16.1	753.4	74	7.3	30	19.50	0.01	5.12	
BR019	09-June-15	9:45	16.1	753.3	88	8.6	22	14.30	0.01	5.15	
BR020	09-June-15	10:10	16.1	753.5	90	8.8	25	18.20	0.01	4.77	
BR021	09-June-15	10:50	16.1	753.7	91	8.9	20	18.20	0.01	4.88	

Habitat Description and Restoration Opportunities of Brown Brook

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
BN001	Bridge overlooking the stream, it widens toward the bridge into a wooden culvert that connects with the main branch of Petite Rivière. This area is also a sampling site. There is a set of slow riffles toward the culvert and the water upstream becomes deep.	0382056 4900463	<p>Left Bank: ~40 cm high, slightly sloped with grasses, sedges, and hardwood sapling growth, ~40 cm from the main paved road, forested area surrounds the bank. Right Bank: ~40 cm high and flat with grasses, sedges and bushes present, ~40 cm from a gravel woods road and the main paved road. There is a forested area on the other side of the woods road.</p> <p>Water Description: flowing slowly, very dark with lots of organics. 10% shaded.</p> <p>Wetted Width: 11 m</p> <p>Bankfull: 15 m</p> <p>Floodplain: +20 m on the left and 10 m on the right</p> <p>Average Depth: 30 cm</p> <p>Thalweg: of 45 cm</p> <p>Substrate: 25% boulder, 30% medium and 45% fines.</p> <p>Riparian Health Assessment Score: 43</p>	Stream crosses underneath a main paved road. There is also a gravel woods road running adjacent to the stream. Just upstream of a regular sample site	n/a	n/a	n/a
BN002	Large fallen tree in the stream. The water is flowing fast over a large set of riffles for about 200 m. There is an abundance of boulders and the site is narrower than the previous site.	0381935 4900416	<p>Left Bank: ~10 cm high with moss and low ground cover, mixed wood forest shades the streams edge, edged with boulders. Right Bank: ~15 cm high, with lots of moss and ground cover vegetation. Soft and hardwood trees shading the brook. There is a braid re-joining the main stream, uprooted tree and many boulders. Water Description: dark color, fast moving over a set of riffles, flows slower along the banks due to boulders. Stream remains narrow until it flows downstream, there are a few braids present, woody debris. 50% shaded, 10% embedded with caddisflies present.</p> <p>Wetted Width: 8 m</p> <p>Bankfull: 9.5 m</p>	Forested area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Floodplain: +20 m Average Depth: 35 cm Thalweg: 55 cm Substrate: 80% boulder, 5% cobble, 5% coarse, 5% medium, and 5% fines. Riparian Health Assessment Score: 56				
BN003	The stream braids downstream. There is an abundance of alders and grass on the bank. The water is slow moving and the site turns into a wetland.	0381907 4900253	Left Bank: 30 cm high and consisting of grasses, sedges and alders, hardwoods near the stream and lots of poison ivy. Right Bank: 30 cm high with mainly grasses and sedges and poison ivy, bank is very open with not much tree cover aside from patches of alders. There is a mixed wood forest approximately 100 m back from the stream. Water Description: slow moving, dark, and it looks shallow. The stream meanders slightly, aquatic vegetation upstream near the banks. 5% shaded. Wetted Width: 7 m Bankfull: ~ 9 m Floodplain: is +20 m Average Depth: unknown Thalweg: unknown Substrate: unknown Riparian Health Assessment Score: 55	Forested area, woods road adjacent to the stream	n/a	n/a	n/a

Water Quality Measurements of Brown Brook

Site Code	Date	Time (24 Hour)	Temperature (°C)	Pressure (mmHg)	Dissolved Oxygen (%sat)	Dissolved Oxygen (mg/L)	Specific Conductivity (μS/cm)	Total Dissolved Solids (g/L)	Salinity (ppt)	pH	Notes
BN001	3-July-15	9:00	18.4	756.8	77	7.3	34	22.10	0.01	4.21	
BN002	3-July-15	-	18.6	756.6	81	7.5	34	22.10	0.01	4.57	
BN003	3-July-15	-	18.8	756.4	80	7.3	34	22.10	0.01	4.70	

Habitat Description and Restoration Opportunities of Fredericks Brook

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
Fred001	A small narrow stretch is present between two wide wetlands holding lots of water. The brook is running between two mature forests	0367305 4909977	<p>Left bank: ~50 cm high, softwood dominant with a small red maple floodplain. Right Bank: ~50 cm high, well drained, softwood dominant forest with some hardwoods interspersed, aquatic grasses with deep roots. Water Description: clear, very slow moving with lots of white water lilies growing. Fish present. 25% shaded, 2% embedded with caddisflies present.</p> <p>Wetted Width: 7 m Bankfull: 9 m Floodplain: +20 m Average Depth: 30 cm Thalweg: not taken Substrate: 80% bedrock, 5% boulder, 5% cobble, 5% medium, 5% fine. Riparian Health Assessment Score: 53</p>	Fish present, wetland area	n/a	n/a	n/a
Fred002	Flowing next to a road, under a double circular culvert with a large amount of rip rap placed on either side of the stream. The stream is channelized leading up to the culvert, which has a good pool on the upstream side.	0367278 4909176	<p>Left Bank: ~30 cm high. Some placed rock has depleted the vegetation. There are some young red maple and shrubs. Right Bank: ~30 cm high, also covered in riprap, depleting the vegetation. There is a large rock wall made from boulders. There is denser, tall vegetation as you approach the road. Water Description: slightly tannin, fast flowing due to channelization, a run-pool-culvert sequence. 20% shaded, 5% embedded with mayflies present.</p> <p>Wetted Width: 1.5 m Bankfull: 2 m Floodplain: 5 m, and +20 m upstream of the site. Average Depth: 10 cm</p>	Adjacent road and constructed culvert. Riprap on stream banks	Reassess area for riparian planting project, and removal of riprap on banks	Low	Site assessed for possible riparian planting project, and deemed as an unsuitable site.

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Thalweg: 20 cm Pool Depth: 80 cm Substrate: 80% cobble and 20% coarse. Riparian Health Assessment Score: 37				
Fred003	The site is a long section of wetland, downstream from the road crossing. The banks are very unstable and undefined. There is lots of flooding and standing dead wood.	0367461 4909156	Left Bank: ~40 cm. There are lots of red maples growing and standing dead wood present. There is a softwood forest ~40 m back that is very thick and dense. Right Bank: ~40 cm tall, composed of grasses and sedges, some small shrubs and red maple and standing dead wood present. Water Description: very slow moving and dark with lots of organics. Lilies and other submerged aquatics are growing. 30% shaded. Wetted Width: 6 m Bankfull: 10 m Floodplain: +20 m Average Depth: +1 m Substrate: too deep to estimate Riparian Health Assessment Score: 55	The site is located downstream from a road crossing, wetland area	n/a	n/a	n/a
Fred004	The site is upstream of a large braid with connecting braids upstream. There is a braid upstream to the left that floods at high water. A wetland is present 100 m upstream of the site.	0367927 4908277	Left Bank: ~20 cm high, covered in tree debris, cobbles and boulders along the flat part, large moss covered red maples growing along the bank. Heavy in leaf litter compared to the right bank. Mixed wood forest, grasses, and ferns. Right Bank: ~15 cm high, flat and slightly bumpy, slightly undercut, boulders and cobbles border the stream, very mossy. Forest is mixed wood with fallen tree debris and leaf litter. Water Description: tannin, moderately flowing. 90% shaded, 10% embedded with mayflies and fish flies present. Wetted Width: 4 m (stream) and 8 m (pool) Bankfull: 4.5 m (stream) and ~10 m (pool) Floodplain: +20 m Average Depth: 10 cm Thalweg: 20 cm	Wetland area upstream, forested	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Pool Depth: 50 cm Substrate: 30% boulder, 40% cobble, 20% coarse, 2% med, 8% fine. Riparian Health Assessment Score: 57				
Fred005	<p>The site is upstream of the crossing on Lapland road. There is a small rock sill and a braid upstream. The downstream opens up into grassier banks with fewer trees.</p>	0367855 4908190	Left Bank: ~0.5 m high, lined with boulders. A small overflow pond/braid flows into the stream. There is a mixed wood forest with lots of yellow birch, fern, and moss cover. Right Bank: ~0.5 m high, bumpy on top, some erosion and undercutting. Large boulders hold the edge of the bank together. The forest is hardwood with a few softwoods and some old cuts. Water Description: tannin, flowing moderately, with some aquatic vegetation. 85% shaded, 10% embedded with stoneflies and caddisflies present. Wetted Width: 4 m Bankfull: 5 m Floodplain: +20 m Average Depth: 15 cm Thalweg: 20 cm Substrate: 20% boulder 50% cobble 10% coarse 10% medium and 10% fine. Riparian Health Assessment Score: 57	Upstream of road crossing, forested area	n/a	n/a	n/a
Fred006	<p>The site is located beside a road, flowing under a cement double diagonal culvert. There was not much water flowing through. Tree debris was found in the water. The culvert is located upstream.</p>	0367816 4908135	Left Bank: ~15 cm high, lots of woody debris. Standing dead wood, pickerelweed, rushes, dense grasses, and mixed wood forest. Right Bank: ~25 cm high, a bit of undercutting, terrain is bumpy. Closer to the road with a few large boulders present at the base. Forest is mixed wood. Water Description: dark tannin, slow moving, fish and aquatic vegetation present. 15% shaded, 5% embedded with caddisflies present. Wetted Width: 10 m Bankfull: 15 m Floodplain: +20 m on the left bank and ~5 m	A road borders this site. The brook runs under a cement double culvert, turns into a wetland downstream	Culvert assessment	Medium	Not completed

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			<p>on the right bank</p> <p>Average Depth: 1 m deep plunge pool after the culvert, and 50 cm downstream of the culvert.</p> <p>Thalweg: none (little flow)</p> <p>Substrate: 5% boulder, 15% cobble, 20% coarse, 30% medium, and 30% fine.</p> <p>Riparian Health Assessment Score: 47</p>				

Water Quality Measurements of Fredericks Brook

Site Code	Date	Time (24 Hour)	Temperature (°C)	Pressure (mmHg)	Dissolved Oxygen (%sat)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	Total Dissolved Solids (g/L)	Salinity (ppt)	pH	Notes
Fred002	June 5, 2015	-	24.3	749.8	71	5.9	30	19.5	0.01	5.27	
Fred004	June 5, 2015	-	23.3	750.0	56	4.7	28	18.20	0.01	5.09	
Fred005	June 5, 2015	-	23.1	750.1	63	5.4	30	19.50	0.01	5.01	
Fred006	June 5, 2015	-	23.2	750.1	54	4.6	31	20.15	0.01	5.22	

Habitat Description and Restoration Opportunities of Wallace Brook

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
Section 1	Outflow of Wallace Lake, Conquerall Mills						
WA001	Confluence approx. 10 m downstream from outflow of Wallace Lake. Beaver activity is at confluence. House on left floodplain. Tree line on left bank 20 m from stream.	0378188 4903195	Left Bank: ~10 cm high, flat with boulders, shrubs, and poison ivy. Red maples growing on floodplain. Right Bank: ~10 cm high, flat with boulders. Shrubs and red maples growing to edge of bank, ferns throughout. Water Description: slightly tannin, fast moving with boulders. Run-riffle-run features. 60% shaded, 30% embedded with two caddisflies present. Wetted Width: 2 m, and 8 m wide below the confluence Bankfull: 2.5 m Floodplain: +20 m Average Depth: 40 cm Thalweg: 60 cm Substrate: 40% boulder, 30% cobble, 10% coarse, 10% medium, 10% fines Riparian Health Assessment Score: 54	Beaver activity, house on left floodplain, power lines across outflow of Wallace Lake	n/a	n/a	n/a
Section 2	Downstream of Dagley Road Crossing, Conquerall Mills						
WA002	Sample site just downstream of Dagley Road crossing. Turtle nesting site on Left bank. Inlets on both sides downstream of reinforced banks. Aquatic vegetation in low flow downstream.	0378294 4903232	Left Bank: 1.5 m high, open, and covered in gravel. Speckled alder and grey birch present with moss throughout. Right Bank: 1.5 m high, covered in gravel with grey birch, serviceberry, and one larch tree. Water Description: slightly tannin, with a moderate flow. Site is a run feature. 15% shaded, 10% embedded with mayflies present. Wetted Width: 2.5 m Bankfull: 2.5 m Floodplain: +20 m (after reinforced banks), 10 m downstream from the road the floodplain is 2 m Average Depth: 45 cm	Reinforced banks with boulders, and gravel on top. Fire hydrant draws water from stream (pipe present)	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Thalweg: 55 cm Substrate: 40% boulder, 30% cobble, 20% coarse, 5% medium, 5% fines. Riparian Health Assessment Score: 41				
WA003	<p>The stream is widened at this site. Water flow is slow. There is a grass floodplain with a stream confluence on the left bank. There is a huge 180° meander downstream.</p>	0378393 4903290	Left Bank: low, covered by grasses and ferns, with alders and red maple present. Right Bank: low and grass covered. The floodplain has red maple present. Water Description: tannin, slow moving, organic and woody debris, and water lilies present. Site is a run-pool-run feature. 20% shaded, 5% embedded with mayflies present Wetted Width: 7 m Bankfull: 9 m Floodplain: +20 m Average Depth: 70 cm Thalweg: 80 Substrate: 10% boulder, 10% cobble, 10% coarse, and 70% organics. Riparian Health Assessment Score: 52	Forested wetland area	n/a	n/a	n/a
WA004	<p>Fallen tree across stream causing debris blockage. Beaver activity. Stream flows around both sides of downed tree.</p>	0378539 4903164	Left Bank: 30 cm high, grass and ferns, Red maple within the floodplain; poison ivy is growing throughout the area. Right Bank: red maple and alders growing, with a grass and fern covered floodplain, poison ivy found. Water Description: tannin, slow moving, deep. Lilies and aquatic vegetation are present. A pool is featured. 40% shaded Wetted Width: 7 m Bankfull: 8 m Average Depth: 80 cm Thalweg: n/a Floodplain: +20 m Substrate: 40% boulder, 30% cobble, 5% coarse, 5% medium, and 20% fines. Riparian Health Assessment Score: 52	Beaver activity	Removal of debris blockage	Low	Not completed

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
WA005	The stream narrows with moderately flowing water. Boulders are present throughout the stream. Four to five braids are present upstream. Woody debris is present above the run. Beaver sighting. The stream opens up into a wetland	0378618 4903076	Left Bank: ~30 cm high, deep-rooted vegetation. Yellow birch, red maple, and spruce trees present. Grass, moss, and poison ivy ground cover. Right Bank: slightly lower than the left bank. Yellow birch and red maple present. Grass and poison ivy ground cover. Water Description: slightly tannin, moderate flow, submerged aquatic vegetation present. Stream feature at this site is riffle-run-riffle. 80% shaded, 15% embedded with mayflies, and caddisflies present. Wetted Width: 3 m Bankfull: 3.5 m Floodplain: +20 m Average Depth: 25 cm Thalweg: 35 cm Substrate: 30% boulder, 25% cobble, 25% coarse, 10% medium, and 10% fines Riparian Health Assessment Score: 53	Beaver sighting, wetland area	n/a	n/a	n/a
WA006	Stream flows from open wetland with grassy, sedge covered banks into a very open forest and bog-type wetland. Main channel with deep flooding 20 m on each bank. Active beaver lodge	0378507 4902916	Left Bank: no defined bank, looks to consist of more grass and less water than the right bank. Mixed wood forest. Lots of standing but less fallen deadwood. Right Bank: very flat terrain. Mixed wood, mostly red maple and black spruce, some islands of partially submerged grass. Cut ~20 m back from the stream. Lots of standing and fallen deadwood. Water Description: very dark with lots of organics and submerged vegetation, barely flowing. Lots of minnows and frogs spotted at this site. Wetted Width: 12 m (main channel), wetted bog width is ~40 m. Floodplain: +20 m Riparian Health Assessment Score: 45	Active beaver lodge	Assess beaver lodge debris blockage to assure fish access	Low	Assessed, removal of debris necessary to restore fish passage Debris removal not completed

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
WA007	Upstream is very wide and slow flowing. Narrows and flows quickly over a section of bedrock riffles. 90 degree meander to the left.	0378979 4902795	<p>Left Bank: ~1.5 m high, flat, with a small shallow pool before a riffle, bedrock protruding into the stream. The bank is composed of mostly softwood, with many hemlocks, balsam fir regeneration. Right Bank: ~1 m tall and is a small hill which levels off and becomes flat ~10 m back from the stream. Has a small, flooded braid. Mixed wood with lots of leaf litter, becomes more open with more grasses further back.</p> <p>Water Description: slow flowing upstream, and fast over riffles. Has an intense flow downward over the bedrock. 10% embedded with three caddisflies found.</p> <p>Wetted Width: 6 m</p> <p>Bankfull: 7 m</p> <p>Floodplain:</p> <p>Average Depth: 40 cm</p> <p>Thalweg: 75 cm</p> <p>Substrate: 80% bedrock, 10% coarse, 5% medium and 5% fines.</p> <p>Riparian Health Assessment Score: 57</p>	Forested area	n/a	n/a	n/a
WA008	Series of riffles and very straight runs for ~150 m. Stream opens up into a red maple floodplain. There are two large pools on the right. Lots of beaver chews. Stream meanders left ~ 70 degrees.	0379076 4902656	<p>Left Bank: not defined and has lots of inlets, very flat and open, held together by grass and sedges, with a forest further back. Right Bank: ~25 cm high but slopes upward to a large hill about 20 m back from the stream, mixed wood forest with lots of woody debris and leaf litter. Forest becomes open at the meander with red maple and grasses. The pool length is ~5 m. Water Description: tannin, woody debris, organics, fast flowing over riffles into a clearing. It slows when the stream widens at the meander. 60% shaded.</p> <p>Wetted Width: ~7 m</p> <p>Bankfull: 9 m</p> <p>Floodplain: +20 m</p> <p>Average Depth: +1 m and depth over the</p>	Possible beaver activity	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			<p>riffles is ~30 cm.</p> <p>Substrate: 10% boulder, 20% cobble, 5% coarse and 65% organics.</p> <p>Riparian Health Assessment Score: 52</p>				
WA009	Straight run following a blockage caused by beaver. Small pool upstream and the stream bends slightly to the right.	0379186 4902572	<p>Left Bank: ~30 cm high with a slight upward slope, undercut, with lots of ferns on the banks edge. Large softwoods, along with balsam fir regeneration ~10 m back. Right Bank: ~0.5 m tall with a slight upward slope for ~3 m then flat with some hills, slightly undercut. Witchhazel, beach, and some softwood are present. The bank has lots of leaf litter and some moss. There are ferns further back where the sunlight penetrates.</p> <p>Water Description: tannin, flowing at a moderate pace, with a gravel bar and submerged vegetation by the pool upstream. 80% shaded.</p> <p>Wetted Width: 5 m</p> <p>Bankfull: 5.5 m</p> <p>Floodplain: +20 m</p> <p>Average Depth: ~30 cm</p> <p>Thalweg: 40 cm</p> <p>Substrate: 10% boulder, 60% cobble, 20% coarse, 5% medium, and 5% fines.</p> <p>Riparian Health Assessment Score: 54</p>	Blockage caused by beaver activity	Assess beaver blockage to insure fish passage	Medium	<p>Assessed, removal of debris necessary to restore fish passage</p> <p>Debris removal not completed</p>
WA010	Stream becomes wider and slower flowing. Lots of overflow inlets and flooding on both banks.	0379290 4902422	<p>Left Bank: more open than the right bank and composed of grasses instead of mud, lots of standing dead wood and some falling over, red maple and yellow birch present.</p> <p>Right Bank: level with the water, no defined banks, very flat with lots of ferns and mosses, muddy and swampy and very flooded. Forest is composed of mixed wood.</p> <p>Water Description: tannin, slow flowing, submerged aquatic vegetation and beaver activity. 60% shaded, 20% embedded with stoneflies, caddisflies and minnows present.</p>	Beaver activity, forested area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Wetted Width: 10 m Bankfull: 15 m Floodplain: +20 m Average Depth: 40 cm Thalweg: 60 cm Substrate: Riparian Health Assessment Score: 53				
WA011	<p>The site is located in the middle of a large braid with lots of small braids and pools on the right upstream. Beaver chews creating a blockage upstream, causing the braiding. The stream opens into a wetland downstream.</p>	0379334 4902368	Left Bank: ~0.5 m high, some undercutting and erosion. Leaf litter present along with grasses, mosses, and mixed wood. Right Bank: ~0.5 m high, lots of small braids, boulders and exposed tree roots in the side of the bank. Moss and ferns present, lots of standing dead wood. Water Description: tannin, moderately flowing, an exposed boulder is located in the middle, some submerged vegetation present. 10 m long pool, 90% shaded, 5% embedded with caddisflies present. Wetted Width: 10 m (stream), 3.5 m (braid) Bankfull: 5 m (braid) Floodplain: +20 m Average Depth: 30 cm Thalweg: 40 cm Substrate: 30% boulder, 50% cobble, 10% coarse, 5% medium, and 5% fines. Riparian Health Assessment Score: 53	Blockage caused by beaver activity	Assess beaver blockage to ensure fish passage	Medium	<p>Assessed, removal of debris necessary to restore fish passage</p> <p>Debris removal not completed</p>
WA012	<p>There is a large wetland upstream with lots of standing dead wood. The banks are not solid and completely flooded over. There is a man-made rock wall</p>	0379658 4902369	Left Bank: flat and covered in grass with flooding, dead wood. Tree line is a mixed wood forest located ~20 m back from the stream. Right Bank: very flat, all covered in grasses and sedges. Tree line is ~50 m back from the main channel. Less woody debris present. Water Description: very dark and deep. It is stagnant until it flows down over a beaver dam. The area is 10% shaded. Wetted Width: 15 m and flooding for ~70 m. Average Depth: too deep to give estimate	Blockage caused by beaver activity, constructed rock wall, wetland area	Assess beaver blockage to ensure fish passage	High	<p>Assessed, removal of debris necessary to restore fish passage</p> <p>Debris removal not completed</p>

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	along the edge of the wetland and a beaver dam at the outflow. There is a ~5 m drop in water level from the wetland to the stream below.		Substrate: too deep to give estimate Riparian Health Assessment Score: 40				
WA013	Beaver dam partially obstructing flow. Metal gears found in the stream bed. Three dead gaspereau found upstream in overflow inlet. Possibly an old mill site.	0379761 4902426	Left Bank: ~5 m high, rock wall built ~5 m back from streams edge. Vegetation consists of moss and grasses and mixed wood forest above wall. Right Bank: has a rock wall built ~3 m high. Hill like terrain, mixed wood forest with a leaf litter forest floor. Water Description: fast flowing and the run begins just past the beaver dam. There is a small confluence downstream near the left bank. Large run of gaspereau just downstream of the site. The beaver dam may block them as they travel upstream. They may travel up the confluence as they were not witnessed past the blockage. 90% shaded. Wetted Width: 5 m Bankfull: 10 m Floodplain: 5 m on the left bank and none on the right. Average Depth: 35 cm Thalweg: 50 cm Substrate: 20% boulder, 40% cobble, 20% coarse, 15% medium and 5% fines. Riparian Health Assessment Score: 42	Man-made rock wall, blockage caused by beaver activity, garbage in area, gaspereau spotted downstream	Removal of garbage Assess beaver blockage to insure fish passage	High	Assessed, removal of debris necessary to restore fish passage Debris removal not completed
WA014	Stream widens, becomes shallower and is a straight run for about 200 m.	0379889 4902366	Left Bank: ~0.5 m high with some undercutting, vegetation is made up of ferns & grasses near the edge, moss & leaf litter further back, mainly softwood forest with downed woody debris. There is a small pool.	Forested area	Installation of approximately three digger log	Medium	Not competed

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	There is a small confluence on the right bank. It is swampy further back.		Right Bank: 10 cm high, sloping upward, vegetation consists of ferns & mosses with a mainly softwood canopy. Some leaf and needle litter, an abundance of fallen woody debris. Water Description: shallow, moderately flowing run, aquatic vegetation over a small set of riffles. Pool is 8 m long, 80% shaded. Wetted Width: 6 m Bankfull: 7 m Floodplain: +20 m Average Depth: 20 cm Thalweg: 25 cm Pool Depth: ~40 cm. Substrate: not taken Riparian Heath Assessment Score: not taken		and three deflectors		
WA015	Meandering stream pattern. Stream becomes wider and deeper. 90° right meander upstream, meander to the left downstream. Site is a run with a large pool on the right.	0380035 4902387	Left Bank: ~0.75 m high, undercut, exposed tree roots and moss, flat on top. Hemlock growing 5 m back from the stream, trees hanging over, ferns present. Right Bank: ~0.5 m high, flat, covered in moss, with grasses and ferns present. Mixed wood forest with mainly softwoods. Woody debris present. Water Description: is dark, deep, and very slow flowing. Some woody debris found. 20% embedded with caddisflies present. Wetted Width: 11 m Bankfull: 12 m Floodplain: +20 m Average Depth: 50 cm Thalweg: 70 cm Substrate: 20% boulder, 40% cobble, 5% coarse, 5% medium, and 30% fines. Riparian Health Assessment Score: 56	Forested area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
WA016	Left bank becomes steeper and taller. The stream becomes shallower riffle-run-riffle. Small pool on right bank.	0380102 4902499	<p>Left Bank: ~0.5 m high, steep slope for ~3 m to a clearing further back. Moss and leaf litter present. Mostly softwoods present.</p> <p>Right Bank: flat, undercut, cobble on the edge, large uprooted tree overhanging the stream. Small inlet/pool, moss with leaf litter and mixed forest further back. Water Description: is deep in the area in front of the fallen tree, riffle-run-riffle feature. 80% shaded, 10% embedded with caddisflies and stoneflies present.</p> <p>Wetted Width: 5 m</p> <p>Bankfull: 7.5 m</p> <p>Floodplain: of +20 m on the right bank and 3 m on the left bank.</p> <p>Average Depth: 30 cm</p> <p>Thalweg: 60 cm</p> <p>Substrate: not taken</p> <p>Riparian Health Assessment Score: 57</p>	Forested area	n/a	n/a	n/a
WA017	Riffle becomes a pool, riffle, and then a run. Water flow is moderate.	0380179 4902939	<p>Left Bank: ~1 m high with hemlock and a moss covered bottom. Right Bank: high with hemlock, yellow birch, ferns, and moss growing throughout.</p> <p>Water Description: tannin, flows moderately, a riffle-pool-riffle-run feature. Pool is 7x15 m. 70% shaded, 20% embedded with four caddisflies present.</p> <p>Wetted Width: 5 m</p> <p>Bankfull: 6 m</p> <p>Floodplain: 1 m on the left side and 2 m on the right side.</p> <p>Average Depth: 30 cm</p> <p>Thalweg: 50 cm</p> <p>Pool Depth: 70 cm</p> <p>Substrate: 20% boulder, 30% cobble, 25% coarse, 10% medium, and 5% fines.</p> <p>Riparian Health Assessment Score: 57</p>	Forested area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
WA018	Bend in stream with fast moving water, riffle feature	0380304 4902596	<p>Left Bank: ~2 m high with root exposure. A hemlock stand is growing here with a few spruces throughout. Right Bank: ~20 cm high covered in moss and ferns with patchy bare spots. Red maple and hemlock noted. Water Description: dark tannin, fast flowing with a riffle feature. 80% shaded, 15% embedded with 2 caddisflies present.</p> <p>Wetted Width: 4 m Bankfull: of 8 m Floodplain: 6 m Average Depth: 30 cm Thalweg: 65 cm Substrate: 10% boulder, 30% cobble, 30% coarse, 20% medium, and 10% fines. Riparian Health Assessment Score: 56</p>	Forested area	n/a	n/a	n/a
WA019	The slope on both banks has increased. Gravel bar within stream. Large hemlock top in stream along the right bank.	0380427 4902535	<p>Left Bank: ~20 cm high, large slope, moss covered with hemlock, yellow birch, and striped maple. Right Bank: ~10 cm high, large slope, with ferns, moss, and trees (hemlock, striped maple, and yellow birch). Water Description: slightly tannin, moderate flow. There is a gravel bar along the left bank. Debris is caught in a fallen hemlock. 70% shaded, 5% embedded with caddisflies present.</p> <p>Wetted Width: 6 m Bankfull: 8 m Floodplain: 10 m on left bank and 7 m on right bank. Average Depth: 30 cm Thalweg: 40 cm. Substrate: 25% boulder, 25% coarse, 25% cobble, 10% medium, and 5% fines. Riparian Health Assessment Score: 54</p>	<p>Possible blockage and debris in fallen hemlock</p> <p>Forested area</p>	Assess possible blockage	Low	Assessed, passable by fish and removal of debris may help to improve fish passage

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
WA020	Fast moving flow with strong currents. The stream narrows with wide left floodplain.	0380514 4902462	Left Bank: red maple floodplain with witch hazel along the bank. Grass and royal fern is noted growing throughout. Right Bank: 1 m high, white pine and balsam fir growth. There is a Christmas tree yard on the right bank, juniper also found along the bank. Water Description: dark tannin, fast flowing, riffle-run-riffle feature. 85% shaded, 10% embedded with caddisflies and stoneflies present. Wetted Width: 4 m Bankfull: 5.5 m Floodplain: 1 m on the right bank and 12 m on the left bank. Average Depth: 30 cm Thalweg: 50 cm Substrate: 10% boulder, 55% cobble, 20% coarse, 10% medium, and 5% fines. Riparian Health Assessment Score: 52	Christmas tree farm	n/a	n/a	n/a
Section 3	Bridge crossing the stream near Crousetown Road, Crousetown						
WA021	Stream crossing (bridge). The stream meanders and then straightens with low water depth. Riffles and runs located upstream. A pool is located under the bridge.	0380717 4902531	Left Bank: ~30 cm high with deep rooted vegetation. Hemlocks with red maple are growing along the bank. Fern and grass ground cover. Right Bank: low and has barbed wire. Red maple and alders are growing with grass, ferns, and poison ivy throughout. Water Description: tannin, moderate flow, a run feature. 60% shaded, 5% embedded with 2 fish flies present. Wetted Width: 5 m Bankfull: 10 m Floodplain: 10 m on the right bank. Average Depth: 15 cm Thalweg: 20 cm Pool Depth: 60 cm Substrate: 5% boulder, 15% cobble, 60% coarse, 10% medium, and 10% fines. Riparian Health Assessment Score: 49	Bridge crossing, barbed wire along right bank	Installation of approximately two digger logs	Medium	Not completed

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
WA022	The stream turns into a 180° right meander. There is a pool on the left bank. Severe undercutting on left bank (very high and steep).	0380775 4902583	<p>Left Bank: ~2 m high, steep gradient down from the road, erosion noticeable and exposing tree roots near the pool. Needle and leaf litter present. Mixed wood forest.</p> <p>Right Bank: ~30 cm high, flat and very mossy, composed of fine grains. Mixed wood forest is present (red maple, balsam fir, spruce, and fern). Water Description: tannin, slow moving in the pool. Pool is 2x5 m, riffle present downstream. 85% shaded, 10% with caddisflies present.</p> <p>Wetted Width: 6.7 m</p> <p>Bankfull: 7.5 m</p> <p>Floodplain: +20 m on the right bank and 1-2 m on the left bank.</p> <p>Average Depth: 45 cm</p> <p>Thalweg: 50 cm</p> <p>Pool depth: 30 cm</p> <p>Substrate: 15% boulder, 20% cobble, 30% coarse, 15% medium, and 20% fines.</p> <p>Riparian Health Assessment Score: 57</p>	Forested area	Assess undercutting	Low	Assessed, no bank stabilization needed
WA023	The stream widens into a long, shallow, straight run (~100m). There is erosion occurring on the meander upstream. A riffle is present downstream.	0380807 4902376	<p>Left Bank: ~20 cm high, gradual incline that flattens at the top into a grassy/fern filled floodplain. Very mossy compared to the right bank. Softwoods are present. Right Bank: mixed wood, leaf litter, moss, ferns, and grasses. A large pine tree is located by the stream. Water Description: very shallow and faster flowing than the last site. Submerged aquatics are present. 75% shaded, 25% embedded with caddisflies present.</p> <p>Wetted Width: 9.4 m</p> <p>Bankfull: 10.5 m. The embeddedness is</p> <p>Floodplain: +20 m</p> <p>Average Depth: 10 cm</p> <p>Thalweg: 15 cm</p> <p>Substrate: 20% cobble, 50% coarse, 20% medium, and 10% fine.</p>	Forested area	Assess location for possible riparian planting project and for installation of digger logs	Medium	<p>Assessed, riparian planting not needed</p> <p>Possible location for digger logs</p>

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Riparian Health Assessment Score: 57				
WA024	There is a shallow pool on the left bank. A rock sill is present, leading to a set of riffles. A narrow run is located upstream. The stream narrows after the set of riffles and meanders right downstream.	0380876 4902292	Left Bank: ~20 cm high. There are boulders along the bank before the rock sill. Dense grass growing along the bank. 2x10 m pool. Right Bank: ~30 cm high, undercutting. Mixed wood forest. A clearing is present ~100 m back, with dense fern growth, and leaf litter. Water Description: dark tannin, flowing at a moderate pace, speeding up after the rock sill (channel narrows). 90% shaded, 5% embedded with caddisflies and mayflies present. Wetted Width: 8 m narrowing to 6 m downstream. Bankfull: 9.5 m Floodplain: +20 m Average Depth: 40 cm Thalweg: 50 cm Pool Depth: 30 cm Substrate: 20% boulder, 40% cobble, 30% coarse, 5% medium, and 5% fines. Riparian Health Assessment Score: 57	Forested area	n/a	n/a	n/a
WA025	The forest opens into a grassy area with a large floodplain and some alders. The stream meanders sharply to the right creating a pool on both right and left banks.	0380919 4902155	Left Bank: ~10 cm high, very flat, open with grasses growing. Alders growing further back off the stream, two red maples growing on the bank. Right Bank: ~30 cm tall and very flat on top. Thick grasses and sedges growing. Open mixed wood forest with red maple and spruce. Water Description: tannin, flowing fast, lots of organic matter and leaf litter. There is a run after a meander leading to a riffle downstream. 60% shaded, 15% embedded with stoneflies, mayflies, caddisflies, and fishflies present. Wetted Width: 6 m Bankfull: 7 m Floodplain: +20 m Average Depth: 50 cm	Forested area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Thalweg: 60 cm Pool Depth: 80 cm Riparian Health Assessment Score: 53				
WA026	The stream widens and becomes slow flowing. Fish observed.	0381043 4902109	Left Bank: large incline upstream ~10 m high, a trail leads from the house to the stream. The bank is flat with grasses growing for ~10 m at the site and then a steep incline, some undercutting. Pool and open mixed wood forest. Right Bank: ~10 cm high, slightly inclined for ~1 m, flat on top, slight undercutting. Mixed wood forest with ferns and some leaf litter. Water Description: some shallow spots, slow moving, lots of aquatic vegetation present. Fish observed. 40% shaded, 40% embedded with dragonflies, caddisflies, and mayflies present. Wetted Width: 11 m Bankfull: 12.5 m Floodplain: of +20 m on the right bank and ~5 m on the left. Average Depth: 60 cm Thalweg: of 40 cm Pool Depth: 70 cm Substrate: 5% boulder, 10% cobble, 5% coarse, 40% medium, 40% fines. Riparian Health Assessment Score: 57	A house located at the top of the hill on the left bank. Road located near the stream, and a boat nearby	n/a	n/a	n/a
WA027	The site is located just upstream of the confluence and main branch. It is upstream of Crousetown road bridge crossing. The stream opens into a very wide wetland	0381135 4902065	Left Bank: large floodplain with lots of grasses and a mixed wood forest. Large logs have been cut down and are laying on the bank and lawn ~ 50 m back. Right Bank: inclines 5 m high up to Italy Cross Road ~10 m back. Has many large boulders, not very defined or sturdy. Mainly hardwood trees. Water Description: moderate flow in the middle, with stagnant flooded areas on the edges, lots of aquatic vegetation such as pickerelweed and arrowhead. Lots of woody	Bridge/road crossing, wetland area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	area.		debris cut in the stream. 10% shaded. Wetted Width: 40 m Bankfull: 45 m Floodplain: 5 m on the right and 20 m on the left. Average Depth: unknown Substrate: organics and fines near the edge of the stream. Riparian Health Assessment Score: 42				

Water Quality Measurements of Wallace Brook

Site Code	Date	Time (24 Hour)	Temperature (°C)	Pressure (mmHg)	Dissolved Oxygen (%sat)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	Total Dissolved Solids (g/L)	Salinity (ppt)	pH	Notes
WA001	18-June-15	8:50	20.1	760.3	90	8.2	50	32.5	0.02	5.90	
WA002	18-June-15	9:27	20.2	760.0	88	8.0	50	36.6	0.02	5.91	
WA003	18-June-15	10:03	20.4	760.0	89	8.0	50	32.5	0.02	5.52	
WA004	18-June-15	10:36	20.3	759.9	84	7.7	50	32.5	0.02	5.32	
WA005	18-June-15	11:00	20.2	760.1	86	7.7	50	32.5	0.02	5.30	
WA006	18-June-15	11:45	19.4	760.1	59	5.5	49	31.85	0.02	4.95	
WA007	18-June-15	12:45	19.7	760.3	76	6.9	49	31.85	0.02	5.10	
WA008	18-June-15	12:55	19.8	760.5	81	7.5	49	31.85	0.02	5.49	
WA009	18-June-15	13:43	20.0	760.6	88	8.0	49	31.85	0.02	5.51	
WA010	18-June-15	14:01	20.0	760.5	82	7.4	48	31.2	0.02	5.60	
WA011	19-June-15	8:51	18.3	755.2	83	7.8	49	31.85	0.02	5.59	
WA012	19-June-15	9:46	18.4	754.8	24	2.3	50	32.5	0.02	5.47	
WA013	19-June-15	10:30	18.5	754.7	78	7.3	49	31.85	0.02	5.43	
WA014	19-June-15	10:56	18.1	755.1	78	7.4	48	31.2	0.02	5.33	
WA015	19-June-15	11:18	18.0	755.1	71	6.6	48	31.2	0.02	5.54	
WA016	19-June-15	11:26	17.9	755.0	84	8.0	48	31.2	0.02	5.44	
WA017	19-June-15	12:00	17.8	754.8	84	8.0	48	31.20	0.02	5.53	
WA018	19-June-15	12:20	17.7	755.0	85	8.1	47	30.55	0.02	5.50	
WA019	19-June-15	12:40	17.6	755.1	83	8.0	40	26.00	0.02	5.56	
WA020	19-June-15	13:00	17.6	754.7	89	8.5	47	30.55	0.02	5.51	
WA021	19-June-15	13:20	17.4	754.7	91	8.7	48	31.2	0.02	5.59	
WA022	02-July-15	10:30	19.3	753.6	83	7.6	47	30.55	0.02	5.57	
WA023	02-July-15	11:00	19.4	753.9	90	8.2	45	29.25	0.02	5.61	
WA024	02-July-15	11:26	19.5	754.0	91	8.4	47	30.55	0.02	5.55	
WA025	02-July-15	11:59	19.6	754.1	87	8.0	47	30.55	0.02	5.76	
WA026	02-July-15	12:31	19.8	754.1	86	7.7	45	29.90	0.02	5.82	
WA027	02-July-15	12:54	20.2	753.9	53	4.8	56	36.40	0.02	5.59	

Habitat Description and Restoration Opportunities of Wildcat Brook

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
Section 1	Confluence of Wildcat Brook into Little Lake to road crossing on Lapland Road, Wileville						
WC00F	Stream widens, with a slight overflow inlet on the right bank.	0374670 4913621	<p>Left Bank: has bushes and sedges. It is very flat and level with the water in the stream. There is a mixed wood forest about 50 m back. Neither banks are very solid nor each have many islands and inlets. Right Bank: very flat, with sedges and shrubs about 10 m back from the stream. There is a large hill about 7 m tall, with a mixed wood forest. Water Description: very dark and slow moving. There is some vegetation near the shore but not in the middle of the stream. 50% shaded. Wetted Width: 20 m Bankfull: 15 m Floodplain: +20 m on the left and 10 m on the right. Average Depth: unknown Thalweg: unknown Substrate: unknown Riparian Health Assessment Score: 53</p>	Nearing the confluence of Wildcat Brook into Little Lake, forested area	n/a	n/a	n/a
WC00E	Large confluence in the middle of a wetland. The stream meanders sharply to the left downstream.	0374435 4913653	<p>Left Bank: has grass and sedges with dense alders about 10 m back from the stream. The banks are not very solid and have lots of mud and inlets. Right Bank: composed of sedges and small bushes. There are some alders present by the confluence. There is also a sparse mixed wood forest downstream by the meander. Water Description: very dark and slow flowing with lots of organics and some aquatic vegetation. The stream is ~20 m wide at the confluence. 10% shaded by the overhanging bushes on the bank. Wetted Width: 8 m Bankfull: 10 m Floodplain: +20 m Average Depth: 1 m</p>	Wetland area	n/a	n/a	n/a

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			Thalweg: n/a Substrate: suspected to be mostly fines and organics. Riparian Health Assessment Score: 51				
WC00D	Middle of a large 180 degree meander to the right. Stream widened and got shallow. There is a very small island in the middle of the stream.	0374294 4913937	Left Bank: has a few alders but is mostly composed of mixed wood forest all the way up to the stream. There is a path through the woods and a trail leading up to the stream. The bank is undercut. Right Bank: ~1 m high, very flat and slightly undercut. It has grass and sedges. Water Description: slow flowing and very dark. 10% shaded and about 5% embedded with fishflies, caddisflies, and stoneflies present. Wetted Width: 7 m Bankfull: 7 m Floodplain: +30 m Average Depth: 40 cm Thalweg: n/a Substrate: 10% cobble, 50% coarse, 25% medium, and 15% fines. Riparian Health Assessment Score: 46	Trail nearby, forested area	n/a	n/a	n/a
WC00C	Narrow and fast flowing, riffle and meander downstream.	0374168 4913863	Left Bank: ~0.5 m high with a thick alder swale with red maple and sedges back about 10 m from the stream. Right Bank: ~1 m high and undercut. Very open with lots of grass and sedges and a few scattered alders. There are large trees further back. Water Description: Small riffle and meander downstream. There are lots of organics and woody debris in the stream and the water is very dark. 50% shaded, caddisflies and fish flies present. Wetted Width: 5 m Bankfull: 6.5 m Floodplain: +30 m Average Depth: 40 cm Thalweg: 50 cm Substrate: 20% coarse, 60% medium, 20%	Forested and wetland area	n/a	n/a	n/a

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			<p>finer</p> <p>Riparian Health Assessment Score: 55</p>				
WC00B	CABIN sampling location, among lots of braiding and overflow channels.	0374010 4913887	<p>Left Bank: ~50 cm – 1m high, with sedges and mixed wood. There are alders right on the side of the bank. Right Bank: ~1 m high, with sedges, young firs, some dead standing trees and mixed wood. Potting soil bags on the bank. Water Description: Riffle-run-pool habitat, tannin and flowing at a medium speed. 60% shaded, 15% embedded with caddisflies found.</p> <p>Wetted Width: 6.5 m</p> <p>Bankfull: 7.5 m</p> <p>Floodplain: +30 m</p> <p>Average Depth: 25 cm</p> <p>Thalweg: 40 cm</p> <p>Substrate: 10% coarse, 5% cobble, 45% medium, and 40% fines.</p> <p>Riparian Health Assessment Score: 56</p>	Short trail through the mixed wood forest on the right bank.	n/a	n/a	n/a
WC00A	Downstream from bridge crossing on Lapland road. Features a riffle, run, riffle sequence.	0373872 4913886	<p>Left Bank: ~40 cm high, mixed wood forest with moss and sedges. Right Bank: has a rocky bar with sedges and moss inland with mixed wood. Lots of birch trees. Slowly sloping starting with only a few centimeters from the water's edge. Water Description: Riffle-run-riffle habitat. Pool upstream and downstream. 65% shaded, 5% embedded with stoneflies abundant.</p> <p>Wetted Width: 4.5 cm</p> <p>Bankfull: 8 m</p> <p>Floodplain: not taken</p> <p>Average Depth: 30 cm</p> <p>Thalweg: 50 cm</p> <p>Substrate: 60% cobble, 20% coarse, 10% medium, and 10% fines.</p> <p>Riparian Health Assessment Score: 57</p>	Short trail through the mixed wood forest on right bank.	n/a	n/a	n/a
Section 2	Upstream from Lapland Rd. Bridge in Wileville, NS						

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WC001	Upstream from Lapland Rd. Bridge	0373765 4913844	<p>Left Bank: ~2 m high bank slope, young vegetation, alders, moss, leaf and wood debris, mostly hardwood. Right Bank: ~1 m high bank slope, moss, grass, alders, mostly hardwood. Water Description: Tannin/brown, some algae on rocks, moderate moving riffle-run area. 50% shade, 20% embedded, with one caddis fly found.</p> <p>Wetted Width: 4.8 m</p> <p>Bankfull: 5.4 m</p> <p>Floodplain: ~20 m (on right bank, and restricted on left bank)</p> <p>Average Depth: 15 cm</p> <p>Thalweg: 22 cm</p> <p>Substrate: 50% bedrock, 5% boulder, 30% cobble, 5% coarse, 7% medium, 3% fine.</p> <p>Riparian Health Assessment Score: not taken</p>	Paved road with metal/creosote wood bridge, and forested area	n/a	n/a	n/a
WC002	Channel widens	0373725 4913857	<p>Left Bank: ~3 m high-rise, sedges on flat area closest to stream for ~1 m, young alders and mixed wood farther back from bank (mostly hardwood). Right Bank: ~3 m high-rise with 2 m of a flat section with moss and sedges, young firs and mixed wood farther back.</p> <p>Water Description: Brown algae on rock and very slow moving, almost still. 30% shade, and ~5% embedded.</p> <p>Wetted Width: 7.9 m</p> <p>Bankfull: 9 m</p> <p>Floodplain: ~15 m</p> <p>Average Depth: 21 cm</p> <p>Thalweg: 26 cm</p> <p>Substrate: 30% bedrock, 10% cobble, 30% coarse, 20% fines.</p> <p>Riparian Health Assessment Score: not taken</p>	Forested area	n/a	n/a	n/a

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WC003	Marshy section with muddy substrate	0373665 4913840	<p>Left Bank: ~30 cm high, flat with sedges, low bushes, maple trees and a few large pine trees. Right Bank: ~35 cm high, with a downed tree in water, ferns, moss, alders, and hardwood. Water Description: Dark colour, muddy, wood debris, a few sedges in water, very slow moving. 15% shade, 10% embedded, and caddis fly found.</p> <p>Wetted Width: 8 m Bankfull: 9.5 m Floodplain: +30 m Average Depth: ~27 cm Thalweg: 30 cm</p> <p>Substrate: 10% shale bedrock, 10% boulders, 30% cobble, 10% coarse, 20% medium, 30% fine.</p> <p>Riparian Health Assessment Score: not taken</p>	Forested area	n/a	n/a	n/a
WC004	Stream narrows with vegetation in stream.	0373637 4913865	<p>Left Bank: ~50 cm high, flat to water for ~1.5 m till increased bank height, sedges, mixed wood, and alders. Right Bank: ~30 cm high, sedges in water and bank, alders, mostly hardwood. Water Description: Tannin/brown colour, fresh water sponge (Spongillidae) and other vegetation growth, faster water speed.</p> <p>Wetted Width: 8 m Bankfull: 9.8 m Floodplain: +30 m Average Depth: 20 cm Thalweg: 25 cm</p> <p>Substrate: 20% boulders, 30% cobble, 10% coarse, 30% medium, 10% fine</p> <p>Riparian Health Assessment Score: not taken</p>	Forested area	n/a	n/a	n/a
WC005	Change in substrate and vegetation, and presents of cloudy water	0373610 4913863	<p>Left Bank: ~ 40 cm up from water and gentle slope for another ~5 m back from bank with mixed wood, forest debris and moss. Right Bank: ~30 cm high, flat, grass, sedges, alders, and some wood debris. Water Description: Tannin/red, and cloudy with suspended</p>	Forested area	n/a	n/a	n/a

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			particles, looks “dusty”, slow moving. ~50% shaded. Wetted Width: 5.8 m Bankfull: 6.5 m Floodplain: +30 m Average Depth: 27 cm Thalweg: 32 cm Substrate: 10% boulders, 5% cobble, 15% coarse, 60% medium, 10% fine. Riparian Health Assessment Score: not taken				
WC006	Pool on left side, wider channel, and beaver activity	0373579 4913842	Left Bank: ~ 20 cm high, pool is about 2x5 m in size, alders and mostly large hardwood trees. Right Bank: ~40 cm high with a smaller pool under a fallen tree, erosion, and mixed wood forest. Water Description: Very slow moving, cloudy, reddish colour. 45% shade and 30% embedded. Wetted Width: 9.5 m Bankfull: 9.7 cm Floodplain: +30 m Average Depth: 28 cm Thalweg: 30 cm Substrate: 10% boulders, 5% cobble, 10% medium, 5% coarse, 70% fines Riparian Health Assessment Score: not taken	Forested area	n/a	n/a	n/a
WC007	Channel narrows, more shade and less boulders	0373564 4913814	Left Bank: ~20 cm high, grass, sedges, alders, and hardwood trees. Right Bank: ~50 cm high, with moss, alders, small shrubs, and mostly hardwood trees. Water Description: slow moving, shallow, tannin, very little vegetation, and woody debris in water. 50% shade, 5% embedded. Wetted Width: 5.6 m Bankfull: 6.7 m Floodplain: +30 m Average Depth: 20 cm Thalweg: 28 cm Substrate: 5% boulders, 35% cobble, 20%	Forested area	n/a	n/a	n/a

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			coarse, 30% medium, 10% fine. Riparian Health Assessment Score: not taken				
WC008	Above alder swale (~30 m long), narrow channel, mostly medium substrate, brown/ orange algae on banks.	0373494 4913819	Left Bank: ~30 cm high, lots of leaf miner eating remaining alders, sedges, grasses, and hardwood forest. Right Bank: ~5 cm high, sandy and muddy banks with sedges, mostly hardwood forest, and sandy beach area appears to be a drinking hole for deer. Water Description: Moderate to slow moving, debris, brown colour, orange algae flakes and sponge finger growths. 55% shade and 5% embedded. Wetted Width: 2.5 m Bankfull: 7.5 m Floodplain: 17 cm Average Depth: 25 cm Thalweg: 24 cm Substrate: 5% cobble, 10% coarse, 75% medium, 10% fine. Riparian Health Assessment Score: not taken	Forested area	n/a	n/a	n/a
WC009	Higher banks, and erosion	0373437 4913869	Left Bank: ~50 cm high, erosion, exposed roots, sandy, flood area same level as water, alders, sedges, and well-spaced out alder swale for ~20 m downstream. Right Bank: ~55 cm high, can see the large shale pit about 30 m back from bank, mostly hardwood, moss, grass, flooding evidence, small pool 3x1 m, erosion. Water Description: Tannin, slow moving, left side has brown/red algae, wood debris. 80% shaded. Wetted Width: 4.8 m Bankfull: 5.4 m Floodplain: +30 m Average Depth: 20 cm Thalweg: 21 cm Substrate: 50% coarse, 40% medium, 10% fine. Riparian Health Assessment Score: not taken	Forested area	n/a	n/a	n/a

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WC010	Break in alders, lots of debris in water, and small riffles.	0373364 4913963	Left Bank: ~40 cm high, alders, mixed wood, sedges, very small pool, and erosion. Right Bank: ~35 cm high, grass, mixed wood, old trail, with lots of debris, erosion and muddy. Water Description: Water is clearer (not as "dusty"), tannin, slow moving, and 70% shade. Wetted Width: 5 m Bankfull: 6.5 m Floodplain: +30 m Average Depth: 22 cm Thalweg: 26 cm Substrate: 40% coarse, 40% medium, 20% fine. Riparian Health Assessment Score: not taken	Forested area	n/a	n/a	n/a
WC011	End of marshy area and into mixed wood forest area. Stream is wide and straight for ~40 to 50 m, and there is a change in substrate.	0373321 4914010	Left Bank: ~30 cm high, with 3 m slope upwards, moss, mixed wood, and leaf debris. Right Bank: ~20 cm high, flat, grass, mixed wood and young firs. Water Description: Tannin, some grass vegetation, fresh sponge algae, slow moving riffle-run-riffle, small meanders at both ends of straight section. 85% shade, 10% embedded. Wetted Width: 6.8 m Bankfull: 7.3 m Floodplain: +30 m on right bank Average Depth: 15 cm Thalweg: 18 cm Substrate: 5% boulders, 20% cobble, 35% coarse, 30% medium, 10% fine Riparian Health Assessment Score: not taken	Forested area	Install two digger logs and deflectors in straight section area	Medium	One digger log and deflectors install in September 2014, second digger log and deflector installed in August 2015.
WC012	Top of ~100° meander, deep pool on left bank	0373293 4914060	Left Bank: ~35 cm high, moss, mixed wood, erosion, some old exposed rots, hardwood trees close to bank edge. Right Bank: ~30 cm high, moss, mostly hardwood, grass, flood stream making braid when water levels would be high enough. Water Description: Dark, slow moving, lots of organic debris. 90% shade, and 5% embedded.	Forested area	n/a	n/a	n/a

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			Wetted Width: 6.1 m Bankfull: 6.3 m Floodplain: +30 m Average Depth: 45 cm Thalweg: 65 cm Substrate: 5% boulders, 5% cobble, 50% coarse, 20% medium, 20% fine Riparian Health Assessment Score: not taken				
WC013	Middle of ~50 to 60 m straight section, close to large shale pit.	0373215 4914034	Left Bank: ~25 cm high with flattop, grass, sedges, mixed wood, ATV trail. Right Bank: ~30 cm high with a ~2 m unnatural (made from mining) hill that sits between the stream and pit, thin line of trees on top of tree. Water Description: Slow moving, lots of vegetation on rocks, organic debris, and erosion occurring on both banks. Wetted Width: 6.4 m Bankfull: 7 m Floodplain: +30 m Average Depth: 15 cm Thalweg: 20 cm Substrate: 15% boulder, 25% cobble, 30% coarse, 20% medium, 10% fine. Riparian Health Assessment Score: not taken	Forested area	Install three digger logs and three deflectors	Medium	Completed, September 2014
WC014	Start of alder swale on right bank, beaver stumps	0373101 4914005	Left Bank: ~50 cm high, mixed wood forest, moss, forest litter, trees to water edge, erosion. Right Bank: ~20 cm high, mostly hardwood, lots of alders, ferns, grass, muddy banks, with beaver sticks. Water Description: Very slow moving, cloudy dirty water, tannin, wood and organic in water, and 80% shade. Wetted Width: 7.1 m Bankfull: 7.3 m Floodplain: +30 m Average Depth: 50 cm Thalweg: 55 cm Substrate: 3% boulder, 5% cobble, 7% coarse, 60% medium, 20% fine	Forested area	n/a	n/a	n/a

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			Riparian Health Assessment Score: not taken				
WC015	Beaver blockage (not fully across), pool on left side after dam.	0373060 4913951	Left Bank: ~35 cm high with flat tops, lots of spruce trees, few maples, grass, older growth and erosion. Right Bank: ~25 cm high with flat tops, moss mixed wood, younger growth, water can freely move through and around dam on this side. There is also a cage on bank possibly to trap beaver. Water Description: Fresh water sponge, slow moving, pooling on left side where dam has stopped flow, lots of organic and leaf debris in water. 95% shaded. Wetted Width: 6.5 m Bankfull: 8.2 m Floodplain: +30 m Average Depth: 23 cm Thalweg: 25 cm Substrate: 5% cobble, 15% coarse, 60% medium, 20% fine. Riparian Health Assessment Score: not taken	Forested area	Install three to four digger logs and three deflectors	Medium	Three digger logs and deflectors installed in August 2015
WC016	Downstream from braid in stream riffle area	0372955 4913882	Left Bank: ~40 cm high, erosion, mixed wood, dirt exposed on banks from being walked on possibly. Right Bank: ~20 cm high, pathways up to banks edge, bating trap, grass, and mixed wood. Water Description: Tannin, green algae, riffle-run, slow moving, 2% embedded, and 70% shade. Wetted Width: 6 m Bankfull: 6.9 m Floodplain: +30 m Average Depth: 19 cm Thalweg: 21 cm Substrate: 5% boulders, 5% cobble, 20% coarse, 50% medium, 20% fine. Riparian Health Assessment Score: not taken	Forested area	n/a	n/a	n/a

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WC017	Upstream from braid and beaver dam (on both sides of braid), and of a confluence.	0372908 4913858	Left Bank: ~10 cm high, alders, mixed wood, sedges, muddy edges. Right Bank: ~10 cm high, tall sedges, alders, mixed wood, farther back, and muddy edges. Water Description: Still moving, riffling at beaver dam, dark, ~50% shade and not embedded. Wetted Width: ~9 m Bankfull: ~9.5 m Floodplain: +30 m Average Depth: 55 cm Thalweg: 65 cm Substrate: 20% medium, 80% fine Riparian Health Assessment Score: not taken	Forested area	n/a	n/a	n/a
WC018	Change in vegetation and upstream from confluence. Vegetation changed from forested to grassy / swampy.	0372838 4913896	Right Bank: 40 cm high, grass bank. Hardwood, low bushes, some dead standing trees, stream is located in a clearing (mostly open space). Left Bank: 15-20 cm high (lower than right bank). Mostly hardwood, alder bush, long grass. Still a clear area but less so than right bank. Water Description: Dark colour/Tannin, slow moving, fairly clear. Organics are present. 10% shade. Wetted Width: 8.2 m Bankfull: 9.3 m Floodplain: +30m Average Depth: 60 cm Thalweg: 70 cm Substrate: 65% fine, 30% medium, 5% coarse Riparian Health Score: 50	Marshland, forested area	n/a	n/a	n/a
WC019	Change in vegetation; more alder bush. The stream is much shallower and narrower (above confluence).	0372756 4913892	Right Bank: ~40cm high, vegetation consisting of alder and long grass. Hardwood forest further from bank. Left Bank: ~30cm high, vegetation consisting of alder and long grass, hardwood forest further from bank. Water Description: Water is slow moving, almost still. Clear, shallow, tannin/brown in colour. Leaf debris and woody debris are present. 60% shade.	Marshland, forested area	n/a	n/a	n/a

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			Wetted width: 2.9 m Bankfull: 5.5 m Floodplain: +30 m Average Depth: 20 cm Thalweg: 30 cm Substrate: 60% fine, 40% medium Riparian Health Score: 54				
WC020	Above confluence on right side. "Right branch" coming from Garber Lake. Good meander.	0372788 4913845	Right Bank: 20 cm high, grass, alders and some tall hardwood. One downed tree. There is a clearing on this bank. Left Bank: 30 cm high, grass, lots of alders and some tall hardwood. Small ponds of still water further back on bank. Water Description: Dark colour/Tannin, slow moving, but flowing faster than WC019. Organic debris. 60% shade. Wetted Width: 4.5 m Bankfull: 5.1 m Floodplain: +30 m Average Depth: 40 cm Thalweg: 45 cm Substrate: 100% fine with organics Riparian Health Score: 54	Marshland, forested area	n/a	n/a	n/a
WC021	Riffle-run area. Small confluence on the right side downstream.	0372767 4913805	Right Bank: ~70cm high, mostly hardwood, grassy. In a clearing of at least 50m back from bank. Left Bank: 70m high, alders, hardwood and high grass. Golden rod is present. Water Description: Dark colour/Tannins, Riffle-run, clear, shallow water. 40% Shaded. Wetted Width: 3.7 m Bankfull: 4.45 m Floodplain: +30m Average Depth: ~10 cm Thalweg: 15 cm Pool: 40cm, in middle of stream. Natural, still. Substrate: 70% coarse, 20% medium, 10% fine Riparian Health Score: 50	Marshland, forested area	n/a	n/a	n/a
WC022	Vegetation opens up,	0372728 4913815	Right Bank: 40cm high, hardwood maples and grass at the bank, alder bushes further back	Marshland, forested area	n/a	n/a	n/a

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	break in alders (a clearing). Nice meander in stream.		from the bank. Left Bank: 45cm high, one downed maple tree, grass. All hardwood trees with some golden rod. Water Description: Dark colour/Tannin, slower moving, Woody debris. 30% shaded. Wetted Width: 5.2 m Bankfull: 5.2 m Floodplain: +30m Average Depth: 45 cm Thalweg: 60 cm Substrate: 40% coarse, 30% medium, 20% fine Riparian Health Score: 53				
WC023	Small inlet pool on the right side	0372645 4913748	Left Bank: has a small floodplain with both softwood and hardwood trees. Right Bank: ~1 m high, leading to the brook with softwood forest with mossy ground cover. Water Description: riffle-run and is very tannin. ~80% shaded, 5% embedded with stoneflies present. Wetted Width: 6.4 m Bankfull: 7.8 m Floodplain: +20 m Average Depth: 20 cm Thalweg: 25 cm Substrate: Substrate is 5% boulder, 30% cobble, 30% coarse, 25% medium, 10% fines. Riparian Health Assessment Score: 56	Forest with recreational trails	n/a	n/a	n/a
WC024	Confluence about 20 m downstream, large 4 x 6 m pool leading to a meander. White suckers present.	0372561 4913740	Left Bank: has a softwood forest with some hardwood, and a small floodplain leading to a steeper bank. Right Bank: 1 m high and has both soft and hard wood. It is well supported by trees. Water Description: tannin with a riffle-run, and pool. The stream is 80% shaded, 5% embedded, with many caddisflies present. Wetted Width: 4.6 m Bankfull: 6.1 m Floodplain: + 20 m	Forested area, white suckers present	n/a	n/a	n/a

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			Average Depth: 20 cm Thalweg: 30 cm Pool Depth: 70 cm Substrate: 10% boulder, 40% cobble, 35% coarse, 10% medium, and 5% fines. Riparian Health Assessment Score: 47				
WC025	Natural digger log across the stream. Gets much wider upstream.	0372466 4913712	Left Bank: ~0.5 m high with a gradual slope. It is mostly softwoods with lots of moss ground cover. Right Bank: flat with a gravel bar in the stream and a steep 3 m tall bank upstream. There is an overflow inlet on the other side of the gravel bar. There is a forest of mixed wood with lots of leaf litter and moss. There are downed trees and a few alders found on the bank. Water Description: The water is tannin and fast flowing. There is a riffle-run after the log sill. The stream is 60% shaded and is 5% embedded with caddisflies. Wetted Width: 3.5 m Bankfull: 10 m Floodplain: +20 m Average Depth: 15 cm Thalweg: 25 cm Substrate: 40% cobble, 50% coarse, 5% medium and 5% fines. Riparian Health Assessment Score: 57	Forest with recreational trails	n/a	n/a	n/a
WC026	Well-used ATV crossing through the stream bed. Large piece of metal on the left bank. Right meander upstream.	0372327 4913738	Left Bank: fairly flat with a gradual slope about 5 m tall further back from the stream. It is composed of a mixed wood forest with lots of needle litter. Right Bank: 1 m high, much taller and steeper downstream. It is fairly flat with some small hills. It is composed mainly of large softwood trees and lots of moss. Water Description: tannin, with a section of riffles over a bedrock sill to a run downstream. The site has 75% shade, 5% embedded with caddisflies present. Wetted Width: 5 m	ATV trails through forest, some garbage on the bank	Assess garbage dump for possible clean up	Low	Not completed

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			Bankfull: 7 m Floodplain: +20 m Average Depth: 15 cm Thalweg: 20 cm Substrate: 70% bedrock, 15% boulder, 10% coarse, 2.5% medium and 2.5% fines. Riparian Health Assessment Score: 50				
WC027	Stream meanders to the right downstream and left upstream. Section of riffles in the stream.	0372178 4913866	Left Bank: very flat and level with the stream height. It has a small gravel bar. The forest is mixed wood with less dead wood than on the right bank. There is a large hill further downstream. Right Bank: 1 m tall with lots of boulders and cobble washed up on the bank. Mostly softwoods, with lots of moss and standing dead wood. Water Description: tannin and fast flowing. 80% shaded and 20% embedded. Wetted Width: 3 m Bankfull: 5 m Floodplain: + 20 m Average Depth: 20 cm Thalweg: 25 cm Substrate: 25% boulder, 50% cobble, 20% coarse, 2.5% medium and 2.5% fines. Riparian Health Assessment Score: 56	Forested area	n/a	n/a	n/a
WC028	Riffle-run into a large pool on the left. 90 degree right meander downstream	0372054 4913882	Left Bank: steep and about 3 m high. It is well supported by large; mainly softwood trees and is flat on top. Right Bank: ~0.5 m high with a gradual slope. Bank is fairly flat on top, with a mixed wood forest and lots of moss and leaf litter. Water Description: Riffle-run habitat. The site is 90% shaded, ~30% embedded with caddisflies, stoneflies and fish-flies present. Wetted Width: 10 m Bankfull: 11 m Floodplain: ~2 m on the left and +20 m on the right	Forested area	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Average Depth: 50 cm Thalweg: 60 cm Pool Depth: 80 cm Substrate: 30% boulders, 50% cobble, 15% coarse, 2.5% medium and 2.5% fines. Riparian Health Assessment Score: 57				
WC029	Bottom of a small braid. The stream widens downstream and meanders to the right. Opens into a wetland upstream with an alder swale.	0372004 4913703	Left Bank: ~2 m high and flat on top. Has a short, 20 m long braid. The forest is composed mainly of softwood. Right Bank: flat with lots of wood and downed trees. The forest is mixed wood and has lots of leaf litter. Water Description: tannin and flowing at a moderate speed. Habitat type is run-riffle-run. The site is 80% shaded, 5% embedded with caddisflies, stoneflies and mayflies present. Wetted Width: 5 m Bankfull: 6 m Floodplain: +20 m on each side Average Depth: 15 cm Thalweg: 20 cm Substrate: 10% boulder, 60% cobble, 15% coarse, 10% medium and 5% fines Riparian Health Assessment Score: 57	Wetland area downstream	n/a	n/a	n/a
WC030	Alder swale at the top of a large braid. Lots of beaver activity.	0372076 4913580	Left Bank: red maple in the floodplain. It is also composed of grass, sedges, and alders and is a large clearing. Right Bank: 1 m tall and very flat. There are lots of grasses, sedges, alders and red maple. There is a mixed wood forest about 50 m back from the stream. Water Description: extremely dark, containing lots of organics and has almost no flow. Substrate is 10% embedded with stoneflies present Wetted Width: 10 m Bankfull: 15 m Floodplain: +30 m Average Depth: 50 cm Thalweg: none	Alders with forest nearby. Recreational trails throughout the forest. Beaver chews present	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			Substrate: 50% coarse, 40% medium and 10% fines. Riparian Health Assessment Score: 53				
WC031	Large meander downstream to the left. Stream is very wide and looks like it has gotten quite deep	0372098 4913428	Left Bank: grasses and sedges with red maples and standing dead wood about 20 m back from the stream. It is very flat and swampy. Right Bank: bushes, grass, and sedges for about 20 m into a mixed wood forest. There is a trail further back. The bank is flat and very swampy. Water Description: very dark and slow moving with lots of organics and some submerged woody debris. Fish were sighted. Site is ~5% shaded. Wetted Width: 20 m Bankfull: 25 m Floodplain: +20 m Average Depth: n/a Thalweg: n/a Substrate: n/a Riparian Health Assessment Score: 52	Alder swamp surrounded by forest	n/a	n/a	n/a
WC032	Change in vegetation- from banks mainly consisting of alders into a hardwood/ softwood forest. This site features the start of a braid. About 6 m on right side braid.	0371774 4913516	Left Bank: ~20 cm high, with a mixed wood forest on top. Right Bank: ~5 cm high and has large vegetation including hemlock and birch, moss and mud. Braid has some vegetation and a muddy surface. Water Description: moving slowly and very dark in color. The site is 60% shaded and 10% embedded. Caddisflies and stoneflies present. Wetted Width: n/a Bankfull: n/a Floodplain: +20 m Average Depth: 55 cm Thalweg: none Substrate: 10% cobble, 40% coarse, 30% medium, 20% fines. Riparian Health Assessment Score: 56	Forested with recreational Trails	n/a	n/a	n/a
WC033	Trail and small wooden bridge	0371544 4913725	Left Bank: 10 cm high with hardwood trees and some softwood. Right Bank: ~ 10 cm high.	Recreational Trails ATVs	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	used as stream crossing widened pool/ Stillwater becomes narrow. End of braid occurs at least 30 m down-stream.		A large 20 m wide pool is by the right bank. Water Description: water habitat is a riffle-run, and is tannin in color. It is 10% embedded with mayflies and caddisflies present. Wetted Width: 5 m Bankfull: 7 m Floodplain: +30 m Average Depth: 20 cm Thalweg: 25 cm Substrate: 10% boulder, 30% cobble, 40% coarse, 10% medium, and 10% fines. Riparian Health Assessment Score: 51				
Section 3	Where stream meets Garber Lake in Newcombsville						
WC034	Mouth of the stream where it meets Garber lake. Very open with lots of bushes and shrubs.	0370292 4913975	Left Bank: very flat and spongy. There is an abundance of leaf litter directly on the bank and in the water. The bank height is level with the water and not very defined. Grass and bushes about 5 m back from the stream after the leaf litter. Right Bank: very flat and not held together. Lots of small inlets are present and a fence about 15 m from the stream with grass and trees on the other side on a slight incline. Water Description: barely flowing, very dark, and 10% shaded. Wetted Width: 5 m Bankfull: 7 m Floodplain: +20 m Average Depth: 1 m Thalweg: none Substrate: all medium, fines and organics. Riparian Health Assessment Score: 51	Wetland and forested area	n/a	n/a	n/a
WC035	Fallen tree across the stream collecting woody debris and blocking the stream.	0370264 4914043	Left Bank: ~ 0.5 m high and flat. Less erosion than on the right bank. Has grasses and sparse forest with lots of standing dead wood. Right Bank: ~1 m high and undercut with some erosion and lots of exposed tree roots. Very mossy. Mixed wood forest of mainly small softwoods. Water Description: very slow	Property is nearby, could hear the lawn mower, blockage from fallen tree	Assess blockage	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	Possible beaver activity.		<p>flowing by the blockage. It is dark with lots of foam collecting near the blockage. 60% shaded, 5% embedded with fishflies and caddisflies found.</p> <p>Wetted Width: 4 m</p> <p>Bankfull: 4 m</p> <p>Floodplain: +20 m</p> <p>Average Depth: 25 cm</p> <p>Thalweg: none</p> <p>Substrate: 10% cobble, 30% coarse, 40% medium, and 20% fines.</p> <p>Riparian Health Assessment Score: 56</p>				
WC036	Fallen tree just downstream, rock sill and pool on the left bank.	0370186 4914077	<p>Left Bank: 10 cm high and has both soft and hard wood. It is more open than the right, with a small pool. Right Bank: 15 cm high and is a hardwood and softwood mix. There is a large dead tree standing, mosses, and a floodplain just downstream.</p> <p>Water Description: shallow and tannin, with a riffle-run habitat type at this site. 70% shaded, 15% embedded with stoneflies and mayflies.</p> <p>Wetted Width: 3 m</p> <p>Bankfull: 3.5 m</p> <p>Floodplain: 10 m on the left bank and +20 m on the right.</p> <p>Average Depth: 10 cm</p> <p>Thalweg: 15 cm</p> <p>Pool Depth: 20 cm</p> <p>Substrate: 20% boulder, 30% cobble, 35% coarse, 10% medium, and 10% fines.</p> <p>Riparian Health Assessment Score: 54</p>	Forested area	n/a	n/a	n/a
WC037	Fallen maple, riffle-run. Debris blockage upstream.	0370089 4914102	<p>Left Bank: 10 cm high, a mix of softwood and hardwood with lots of grass and moss. Right Bank: 10 cm high and has both hardwood and softwood. It is less moist than the left bank and there is a lot of needle litter with some moss. Water Description: shallow, flowing at a moderate pace, and is tannin in colour. The</p>	Debris blockage	Assess blockage	Low	Not completed

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
			stream is 90% shaded and caddisflies were found. Wetted Width: 3.5 m Bankfull: 4 m Floodplain: +20 m on the left and 5 m on the right. Average Depth: 10 cm Thalweg: 15 cm Substrate: 10% boulder, 20% cobble, 30% coarse, 25% medium and 15% fines. Riparian Health Assessment Score: 57				
WC038	Property marker in the middle of the stream. Bridge for Garber road crossing upstream.	0369996 4914084	Left Bank: 30 cm high, and undercut. The bank has a mix of hard and softwood and there is a ditch flowing into the stream near the bridge. Right Bank: 10 cm high and has mostly hardwood trees with few softwoods and undercut banks. Water Description: flowing water that is dark and tannin. The site is 85% shaded and 5% embedded with caddisflies present. Wetted Width: 3 m Bankfull: 3.5 m Floodplain: +20 m Average Depth: 15 cm Thalweg: 20 cm Substrate: 20% boulder, 40% cobble, 25% coarse, 10% mediums and 5% fines. Riparian Health Assessment Score: 47	Bridge at road crossing upstream	n/a	n/a	n/a
Section 4	Upstream of bridge for Garber Road crossing in Newcombville						
WC039	Upstream of the Garber Road crossing. Two small braids downstream. Beaver dam across the stream.	0370009 4914000	Left Bank: very flat with lots of grasses and sedges. It also has an abundance of standing dead wood. There are two trees uprooted in the stream. Red maples and other trees are found further back. Right Bank: 10 cm high and is very flat. There are grasses and an open mixed wood forest further back. Water Description: very dark and extremely slow moving. There are lots of organics and woody	Road several meters downstream, some beaver activity, wetland area upstream	n/a	n/a	n/a

Section / Site Code	Stream Feature	Site Coordinates (UTM 20T)	Site Details	Adjacent Land Use Considerations	Prescription for Restoration	Project Priority Ranking	Project Status
	Widens significantly upstream into a wetland.		debris in the water. Some beaver activity. Wetted Width: 2.5 m (downstream and about 10 m upstream with bankfulls of 11 m) Bankfull: 3 m Floodplain: +30 m Average Depth: 60 cm Thalweg: n/a Substrate: 15% boulder, 15% cobble, and 30% coarse. Riparian Health Assessment Score: 52				
WC040	Widens and is flowing through a wetland. Meander at the site.	0370031 4913921	Left Bank: a marsh with few trees and lots of woody vegetation. Right Bank: very similar to the left with more dead wood. Red maple, Eastern Larch, grasses and woody vegetation present. Water Description: dark and of a poor quality, very slow flow. 20% shaded. Wetted Width: 6 m Bankfull: 8 m Floodplain: +20 m Average Depth: greater than a meter Substrate: too deep to estimate Riparian Health Assessment Score: 51	Road less than a kilometer downstream of the site, wetland area	n/a	n/a	n/a

Water Quality Measurements of Wildcat Brook

Site Code	Date	Time (24 Hour)	Temperature (°C)	Pressure (mmHg)	Dissolved Oxygen (%sat)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	Total Dissolved Solids (g/L)	Salinity (ppt)	pH	Notes
WC00F	27-May-15	13:30	17.4	759.4	104	9.9	39	26.00	0.02	4.61	
WC00E	27-May-15	13:56	17.8	759.4	95	9.0	40	26.00	0.02	4.65	
WC00D	25-May-15	14:23	18.2	759.2	100	9.5	40	26.00	0.02	4.85	
WC00C	25-May-15	14:48	18.4	759.4	99	9.3	41	26.65	0.02	5.02	
WC00B	25-May-15	9:19	15.8	760.5	63	6.3	39	25.35	0.02	4.96	
WC00A	25-May-15	9:50	13.8	760.6	39	4.0	47	30.55	0.02	4.60	
WCDS1	07-Aug-14	15:13	22.4	749.3	91	7.8	47.9	31.2	0.02	4.22	Downstream from Bridge
WC001	05-Aug-14	11:31	20.1	750.9	93	8.5	42.5	27.95	0.02	5.11	
WC002	05-Aug-14	11:52	20.3	750.8	90	8.1	48.6	31.85	0.02	5.39	
WC003	05-Aug-14	12:12	20.5	750.5	79	7.1	46.3	29.9	0.02	5.53	
WC004	05-Aug-14	12:31	20.8	750.4	93	8.3	48.8	31.85	0.02	5.56	
WC005	05-Aug-14	12:43	20.6	750.2	84	7.5	47.6	31.2	0.02	5.34	
WC006	05-Aug-14	13:09	21	749.9	89	7.9	48.6	31.85	0.02	5.45	
WC007	05-Aug-14	13:25	21.2	749.7	88	7.8	48.5	37.2	0.02	5.35	
WC008	06-Aug-14	10:45	20	749.9	88	8.0	46.6	30.55	0.02	4.76	
WC009	06-Aug-14	11:40	20.1	749.8	82	7.5	45	29.25	0.02	5.07	
WC010	06-Aug-14	11:24	20.2	749.8	84	7.6	46.2	29.9	0.02	5.21	
WC011	06-Aug-14	11:45	20.3	749.8	75	6.8	44.8	29.25	0.02	5.35	
WC012	06-Aug-14	12:16	20.6	749.7	79	7.1	41.3	26.65	0.02	5.17	
WC013	06-Aug-14	12:37	10.8	749.6	83	7.4	43.3	27.95	0.02	5.17	
WC014	06-Aug-14	13:00	21.2	749.5	69	6.1	42.1	27.3	0.02	5.40	
WC015	06-Aug-14	13:31	21.8	749.3	79	7.0	45.8	29.9	0.02	5.37	
WCpondRB	07-Aug-14	13:44	24	749.3	36	3.0	72.6	47.45	0.03	4.30	Small pond B/W WC015 & WC016
WC016	06-Aug-14	14:02	22.2	749.3	80	6.9	46	29.9	0.02	5.00	
WC017	06-Aug-14	14:21	21.6	749.2	53	4.7	45.8	29.9	0.02	5.12	
WC018	15-Oct-14	10:53	14.10	758.80	71.00	7.30	45.00	29.25	0.02	4.00	
WC019	15-Oct-14	11:27	14.90	758.50	88.00	8.80	52.70	34.45	0.02	5.34	
WC020	15-Oct-14	11:49	14.20	758.50	83.00	8.50	42.10	27.30	0.02	4.01	
WC021	15-Oct-14	12:12	14.30	758.50	90.00	9.20	42.20	27.30	0.02	4.24	

Site Code	Date	Time (24 Hour)	Temperature (°C)	Pressure (mmHg)	Dissolved Oxygen (%sat)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	Total Dissolved Solids (g/L)	Salinity (ppt)	pH	Notes
WC022	15-Oct-14	12:35	14.40	758.30	88.00	9.00	41.60	27.30	0.02	4.21	
WC023	21-May-15	11:02	14.2	750.9	96	9.8	32	20.8	0.01	4.82	
WC024	21-May-15	11:25	14.6	750.7	94	9.6	32	20.8	0.01	4.93	
WC025	21-May-15	11:45	14.9	750.7	94	9.5	36	23.40	0.02	5.01	
WC026	21-May-15	12:30	15.8	750.6	97	9.6	32	20.80	0.01	4.88	
WC027	21-May-15	13:00	16.6	750.3	92	9.0	33	21.45	0.01	4.95	
WC028	21-May-15	13:20	17.4	750.1	83	8.1	33	21.45	0.01	5.08	
WC029	21-May-15	14:00	17.8	750.1	83	7.9	34	22.10	0.01	4.93	
WC030	21-May-15	14:27	17.6	750.1	69	6.9	34	22.10	0.01	5.10	
WC031	21-May-15	14:59	15.1	749.8	60	6.0	33	22.10	0.01	5.10	
WC032	25-May-15	10:20	15.1	758.7	77	7.8	26	16.90	0.01	4.26	
WC033	25-May-15	11:00	15.8	758.5	88	8.7	34	22.10	0.01	4.32	
WC034	25-May-15	-	17.8	758.7	77	7.3	35	22.75	0.01	3.83	
WC035	25-May-15	13:23	17.4	758.7	87	8.3	33	21.45	0.01	3.38	
WC036	27-May-15	12:31	16.8	758.5	84	8.4	26	16.90	0.01	4.04	
WC037	27-May-15	11:44	15.4	758.8	71	7.1	34	22.10	0.01	3.77	
WC038	27-May-15	11:06	14.9	759.0	59	6.0	26	3.88	16.9	0.01	
WC039	27-May-15	14:11	13.6	758.3	39	4.0	35	22.75	0.03	3.29	
WC040	27-May-15	14:20	11.5	758.3	28	2.9	45	29.25	0.02	3.60	

Restoration Plan Summary

Future work will first involve stream crossing assessments for aquatic connectivity starting at the mouth of the river and working up towards the headwaters. Petite Rivière watershed is known to be highly fragmented from years of damming of the river, causing barriers to fish passage. In addition to the damming of the river there are approximately 80 stream road crossings throughout the 244 km² watershed that might act as barriers to fish passage. Stream crossing assessments will help to identify areas in need of restoration. From the stream crossing assessments five of the high priority crossings preventing fish migration will be selected and restored in the 2016 field season. Along with these aquatic connectivity assessments, stream assessments will occur in areas of interest or concern throughout the watershed. An investigation into the furthest downstream wooden dam constructed during 1889 on the main channel of the Petite Rivière in Crousetown will be conducted for fish passage. The fishway at the Crousetown dam is known to provide upstream access to anadromous gaspereau and Atlantic salmon but may act as a partial barrier and repairs to improve the fishway may be desirable.

In addition to aquatic connectivity assessments, electrofishing will be conducted in tributaries believed to host salmon and trout to gain a sound understanding of areas in which fish habitat improvements should be conducted. In-stream and riparian health assessments will also be performed in tributaries which are known to be heavily impacted or surrounded by agricultural, industrial, or urban development.

There will also be a continuation of the Wildcat Shale Pit Restoration and Wetland Expansion Project. Currently the restoration site has 0.35 ha of the 1.10 ha area covered by organic wetland material. In the 2016 field season the rest of the 1.10 ha area will be fully covered by organic wetland material, seeded, and planted with wetland vegetation. The goal of this restoration project is to reduce the acidic runoff from the shale pit into the adjacent Wildcat Brook and to create a wetland habitat that can be used by wildlife. This high acidity is caused by the bedrock geology of pyritic slate which is exposed to the atmosphere in the abandoned shale pit and causes a chemical reaction creating sulfuric acid when rainwater is introduced. Heavy rainfall events cause runoff into the brook causing acidic shocks, which can be detrimental to aquatic life.

The work planned for the 2016 field season will need funding to employ summer staff with temporary jobs and for materials for potential restoration work done to culverts and other structures such as dams and bridges.

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